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Lake Champlain Basin, Essex County, New York
Inventory No. 368

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National Dam Safety Program

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

Examination of available documents and a visual inspection of the dam did not reveal conditions which constitute an immediate hazard to human life or property.

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Several deficiencies were noted and these should be corrected within 6 months of the date of final approval of this report. Among the actions which should be taken are refilling the cribs which are missing material, repair of displaced timbers on the downstream face, replace broken timbers, repair of the valve on the drain, and repair of the spalling concrete on the wingwall which extends downstream of the north abutment. In addition, a detailed emergency action plan and warning system should be developed.

This dam does not have sufficient spillway capacity to adequately discharge the peak outflow from one-half the PMF. The analysis indicates that the dam would be overtopped by all storms exceeding 15% of the PMF. However, the structural stability analysis indicates that the dam would be stable when subjected to the PMF storm event. Therefore, the spillway is assessed as being inadequate.

The water surface level for either the PMF or one-half the PMF would result in flow around the northern end of the concrete wingwall which extends from the abutment of the dam. An accurate topographic survey should be performed where this end around flow is likely to occur. This survey should be completed within 6 months and modifications necessary to prevent the adverse effects of this flow should be made within 12 months.

LAKE CHAMPLAIN BASIN

MILL POND DAM

ESSEX COUNTY NEW YORK
INVENTORY NO. N.Y. 368

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

⑥ NATIONAL DAM SAFETY PROGRAM, Mill Pond Dam (Inventory Number NY368), Lake Champlain Basin, Essex County, New York. Phase I Inspection Report,

⑮ DACW51-79-C-0041

⑫ 141

⑩ George / Koch

⑪ 28 Aug 80

NEW YORK DISTRICT CORPS OF ENGINEERS

~~JULY, 1980~~

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PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

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PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
MILL POND DAM
I.D. NO. N.Y. 368
LAKE CHAMPLAIN RIVER BASIN
ESSEX COUNTY, NEW YORK

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PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam: Mill Pond Dam (I.D. No. NY 368)

State Located: New York

County Located: Essex

Watershed: Lake Champlain Basin

Date of Inspection: April 16, 1980

ASSESSMENT

Examination of available documents and a visual inspection of the dam did not reveal conditions which constitute an immediate hazard to human life or property.

Several deficiencies were noted and these should be corrected within 6 months of the date of final approval of this report. Among the actions which should be taken are refilling the cribs which are missing material, repair of displaced timbers on the downstream face, replace broken timbers, repair of the valve on the drain, and repair of the spalling concrete on the wingwall which extends downstream of the north abutment. In addition, a detailed emergency action plan and warning system should be developed.

This dam does not have sufficient spillway capacity to adequately discharge the peak outflow from one-half the PMF. The analysis indicates that the dam would be overtopped by all storms exceeding 15% of the PMF. However, the structural stability analysis indicates that the dam would be stable when subjected to the PMF storm event. Therefore, the spillway is assessed as being inadequate.

The water surface level for either the PMF or one-half the PMF would result in flow around the northern end of the concrete wingwall which extends from the abutment of the dam. An accurate topographic survey should be performed where this end around flow is likely to occur. This survey should be completed within 6 months and modifications necessary to prevent the adverse effects of this flow should be made within 12 months.

George Koch

George Koch
Chief, Dam Safety Section
New York State Department
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Approved By:

Col. W. M. Smith Jr.
New York District Engineer

Date: 28 AUG 1980

OVERVIEW
Mill Pond Dam
I.D. No. NY 368

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
MILL POND DAM
I.D. NO. NY 368
#201C-4289
LAKE CHAMPLAIN BASIN
ESSEX COUNTY, NEW YORK

SECTION 1: PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection

This inspection was conducted to evaluate the existing conditions of the dam, to identify deficiencies and hazardous conditions, to determine if these deficiencies constitute hazards to life and property, and to recommend remedial measures where required.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam

The Mill Pond Dam in Lake Placid is a structure composed of hemlock timber cribs, a gatehouse, and concrete walls extending beyond both ends of the dam.

The dam itself is 136 feet long and a maximum of 17.5 feet high. A steel sheet pile wall acts as a cutoff beneath the dam. The timber cribs are filled with cobbles and boulders and hemlock planks cover the cribs. The concrete walls extend 150 feet west from the southern end of the dam and 100 feet north beyond the gatehouse on the northern end.

The spillway consists of two steps and is located in the center of the dam. The lower level is 57 feet long. The second level is stepped 1.5 feet above the first and is a total of 92.5 feet long. The gatehouse at the northern end of the dam contains the control mechanism for a valve which regulates flow at the reservoir drain inlet, an 84 inch diameter steel. A 42 inch diameter reinforced concrete pipe forms the outlet to this pipe.

b. Location

The dam is located on the Chubb River within the limits of the Village of Lake Placid. Railroad Street (also known as Averyville Road) runs adjacent to the structure and NY Route 73 is approximately 1000 feet downstream of the dam.

c. Size Classification

The dam is 18 feet high and has a maximum storage capacity of 266 acre-feet. Therefore, the dam is in the small size category as defined by the

"Recommended Guidelines for Safety Inspection of Dams."

d. Hazard Classification
The dam is classified as "high" hazard due to the presence of several commercial establishments, an apartment building and a state highway located several thousand feet downstream of the dam.

e. Ownership
The dam is owned by the Village of Lake Placid, New York. Mr. John Barry a village trustee was contacted concerning the inspection. His telephone number is (518)523-2597.

f. Purpose of Dam
The dam is used to maintain the water surface of the Mill Pond for recreational purposes.

g. Design and Construction History
The dam as it now exists was constructed in 1978. It replaced another dam at this location which failed a number of years ago. Only the reservoir drain and gate house from the old structure were incorporated into the reconstructed dam. The new structure was designed by Spencer Thew, consulting engineer from Canton, New York

h. Normal Operating Procedures
There are no regular operating procedures for this structure.

1.3 PERTINENT DATA

a. Drainage Area (sq. mi.) 40.05

b. Discharge at Dam	Water Surface @:	(cfs)
Spillway	Elev. 1729.44	2522
Spillway	Elev. 1725.5	276
Reservoir Drain - 42" pipe	Elev. 1725.5	208

c. Elevations (USGS Datum)	
Top of Dam	1729.44
Top Step of Spillway	1725.50
Spillway Crest	1724.0
Invert of Drain (inlet)	1714.0

d. Reservoir-Surface Area (acres)	
Top of Dam	28
Top Step of Spillway (Elev. 1725.5)	25
Spillway Crest (Elev. 1724)	22

e. Storage Capacity (acre-feet)	
Top of Dam	266
Top step of spillway	137
Spillway Crest	88

f. Dam

Type: Timber crib dam composed of hemlock timbers which are filled with cobbles and boulders.

Dam length (ft):	137
Crest width (ft):	11

g. Spillway

Type - Two level overflow section in the center of timber cribs

Length (ft)	Lower level	57
	Upper level-total	92.5

h. Reservoir Drain

Type: 84 inch steel conduit with a valve at upstream end. Conduit connects with a 42 inch reinforced concrete pipe which forms the outlet.

i. Appurtenant Structures

1. Gatehouse - Rectangular building 17 ft. by 24 ft.; contains control mechanism for the reservoir drain

2. Concrete Walls - 2 walls-one extending from each end of structure Wall at southern end is average of 8 feet high and extends 150 feet to the west. Wall at northern end is about 4 feet and extends northerly 100 feet beyond gatehouse.

SECTION 2: ENGINEERING DATA

2.1 GEOTECHNICAL DATA

a. Geology

The Mill Pond Dam is located in the high peaks section of the Adirondack Highlands physiographic province of New York State. The rock in this area dates from the Precambrian era. It has been intensely metamorphosed by heat, pressure, folding and faulting. Surface features of the rock reflect the effects of glaciation. A review of the "Brittle Structures Map of the State of New York" indicated that there are no faults in the immediate vicinity of the dam.

The surficial soils are the result of glaciations during the Cenozoic Era, the last of which was the Wisconsin glaciation.

b. Subsurface Investigations

Two borings were progressed at the site of this dam to provide subsurface information for the design. These holes indicated that the subsurface conditions consist of several feet of miscellaneous fill material underlain by sand and gravel. Logs from the two drill holes have been included in Appendix F.

2.2 DESIGN RECORDS

This dam was designed in 1977 by Spencer Thew, Consulting Engineer. Plans and other design information was available. Copies of selected sheets from the plans and a copy of the application for permit for the reconstruction of the dam have been included in Appendix F.

The designer of this structure made an error in delineating the drainage area and based the design on a drainage area of 16.55 square miles. As a result, the inflows for which the dam was designed were much smaller than the values which were calculated for this report.

2.3 CONSTRUCTION RECORDS

A set of as-built plans for the structure was available. In addition, reports from several inspections conducted by state officials during the construction were also available.

2.4 OPERATION RECORDS

No operation records are known to exist for this dam.

2.5 EVALUATION OF DATA

The data presented in this report was obtained from the Department of Environmental Conservation files and from a 1979 report titled "Hydroelectric Feasibility Study, Chubb River Sites", prepared by O'Brien & Gere Engineers, Inc. for the New York State Energy Research and Development Authority. The information available appeared to be adequate and reliable for Phase 1 inspection purposes.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General

Visual inspection of the Mill Pond Dam was conducted on April 16, 1980. The weather was overcast and the temperature was in the thirties. At the time of the inspection, water was flowing over the spillway at a depth of approximately 0.75 feet.

b. Dam

This dam was in satisfactory condition. However, several deficiencies were noted. Among these deficiencies were cribs that were not completely filled with stone and some displaced timbers on the downstream face.

The backfill in the cribs has been a maintenance problem since the dam was constructed in 1978. The cribs were originally filled with bank run gravel. Much of this material washed out during the initial filling of the pond. Additional quantities washed out each year. Each year cobbles and crushed stone are put into the cribs to replace the material which has washed out. Last year, 40 tons of stone was put into the cribs. At the time of the inspection, a number of cribs needed additional backfill material.

There were several timbers on the downstream face which had been displaced. One timber had come out of the crib and was at the base of the dam. Other timbers had displaced into the crib. There were also several broken planks on the second level of the timber cribs in the spillway.

c. Spillway

The spillway consisted of a two level channel section in the center of the dam. The tops of the cribs across the entire length of the dam were covered with hemlock planks. In the spillway section, water flowed across the planks and plunged onto the bottom level of cribs, whose tops had been left uncovered. With the exception of the backfilling problems, displaced logs, and broken planks previously mentioned, the spillway was in satisfactory condition.

d. Reservoir Drain

Visual observations of the reservoir drain were limited to an inspection of the outlet pipe. The valve is reported to be operational and was opened approximately 6 inches at the time of the inspection. Mr. Barry said that the valve will not close completely so there is always some flow through the conduit.

e. Concrete Walls

The concrete walls which extend from each end of the structure were in satisfactory condition. The wall at the southern end of the dam was constructed in 1978 and was in good condition. The wall which extends from the northern end of the dam consists of about 2.5 feet of new concrete on top of an existing wall. This entire wall extends for approximately 100 feet to the north and is in satisfactory condition. The wall terminates at this point but the top is several feet above the existing ground surface. As a result, the water could flow around the end of this wall before it would overtop the dam.

f. Gatehouse

The gatehouse was in satisfactory condition. It was being reconstructed and might be converted into a museum in the future.

g. Downstream Channel

The channel downstream of the dam contains large boulders, cobbles and gravel. A pool was formed immediately downstream of the dam in 1979 by excavating the gravel which had washed through the cribs. This pool helped to dissipate energy in the channel.

There was a wingwall which extended from the north abutment for about 20 feet along the channel. The concrete on this wall was spalling and deteriorated.

3.2 Evaluation of Observations

Visual inspection revealed several deficiencies on this structure. The following items were noted:

1. Several of the cribs were not completely filled with stone.
2. Some timbers on the downstream face were displaced.
3. The valve on the reservoir drain could not be closed completely.
4. The concrete wall at the northern end of the dam is not long enough to prevent water from flowing around the end of the structure.
5. The concrete on the wingwall which extended downstream from the north abutment was spalling and deteriorated.
6. Several broken planks on the second level of cribs.

SECTION 4: OPERATION AND MAINTENANCE PROCEDURE

4.1 PROCEDURES

There are no regular operation procedures for this dam.

4.2 MAINTENANCE OF DAM

Routine maintenance on the dam is performed by the Village of Lake Placid. The Village has an annual maintenance program which includes refilling the cribs, replacing any damaged timbers, and making other minor repairs as required.

4.3 WARNING SYSTEM IN EFFECT

No apparent warning system is present.

4.4 EVALUATION

The operation and maintenance procedures for this dam appear to be satisfactory.

SECTION 5: HYDROLOGIC/HYDRAULIC

5.1 DRAINAGE AREA CHARACTERISTICS

Delineation of the watershed for Mill Pond was made using the USGS 7.5 minute quadrangles for Lake Placid, Saranac Lake, and Ampersand Lake, New York. The drainage area for this dam is 40 square miles.

The northern portion of the drainage basin is dominated by Lake Placid. Mountain peaks rising up to 4800 feet form the outer limits of the drainage area. The slopes are generally steep throughout the watershed.

5.2 ANALYSIS CRITERIA

For the purposes of this analysis, the drainage area was divided into three subbasins. The first subbasin consisted of 20.89 square miles of forest and lake which make up the watershed to Lake Placid. The runoff from this basin was then routed through the dam on Lake Placid, taking the storage capacity in the lake into account. The time of concentration for this basin was then adjusted to account for the time it takes the water to reach Mill Pond. The second subbasin was a 3.87 square mile watershed immediately upstream of Mill Pond. The third subbasin consisted of 15.29 square miles which form the drainage area for the main branch of the Chubb River.

The analysis of the floodwater retarding capability of this dam was performed using the Corps of Engineers HEC-1 computer program, Dam Safety version. This program develops an inflow hydrograph using the "Snyder Sunthetic Unit Hydrograph" method and then uses the "Modified Puls" flood routing procedure. The spillway design flood selected was the Probable Maximum Flood (PMF) in accordance with the Recommended Guidelines of the U.S. Army Corps of Engineers.

5.3 SPILLWAY CAPACITY

The spillway is located in the center of the dam. The spillway was analyzed as a broad crested weir consisting of two segments, each with discharge coefficients (c) ranging from 2.65 to 2.8. The computed discharge capacity of the spillway with the water surface at the top of the dam is 2522 cfs.

The discharge capacity of the drain was not included since the valve on this conduit is normally closed.

5.4 RESERVOIR CAPACITY

Storage capacity of the reservoir between the spillway crest and the top of the dam is 178 acre-feet, which is equivalent to a runoff depth of 0.1 inches over the entire 40 square mile drainage area. The total storage capacity of Mill Pond is 266 acre-feet. Lake Placid is the dominant feature of the northern subbasin of the watershed. It provides a substantial amount of storage which reduces the peak flows at the Mill Pond Dam.

5.5 FLOODS OF RECORD

No accurate information was available regarding the maximum known flood at this structure. Mr. Barry indicated that the highest water surface in the pond was up to the middle of the top crib (approximately elevation 1727.5). The computed discharge for this water level is approximately 1200 cfs.

5.6 OVERTOPPING POTENTIAL

Analysis using the Probable Maximum Flood (PMF) and one-half the PMF indicates that the dam does not have sufficient spillway capacity. For a PMF peak outflow of 15,617 cfs, the dam would be overtopped to a depth of 5.03 feet. For the peak outflow from one-half the PMF of 7,616 cfs, the depth of overtopping would be 2.41 feet.

5.7 EVALUATION

Using the Corps of Engineer's screening criteria for initial review of spillway adequacy, it has been determined that the dam would be overtopped by all storms exceeding 15% of the PMF inflow. However, the structural stability analysis performed for this structure indicates that the dam would be stable when subjected to the PMF storm event. Therefore, the spillway is assessed as being inadequate.

Because the ground surface beyond the end of the wall at the northern end of the dam is below the level of the top of the dam, water would flow around the end of the wall during high water conditions. Further investigation of this condition is required.

SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations

Visual observation of the dam revealed several deficiencies which could affect the stability of the dam. There were some cribs which were missing rock backfill material and several timbers on the downstream face had been displaced. In addition, some of the planks on the spillway section of the dam were broken. Although these deficiencies were observed, the overall vertical and horizontal alignments appeared to be satisfactory.

b. Data Review and Stability Evaluation

This dam is a rock-filled timber crib structure. A stability analysis for the spillway section of the dam was performed using the as-built plans prepared by Spencer Thew, Consulting Engineer. The analysis assumed that the sheet piling was driven as indicated on the plans and was capable of providing passive resistance against sliding. The following conditions were analyzed.

a. Normal conditions with reservoir level 0.5 feet above spillway crest (elevation 1724.5);

b. Reservoir level 0.5 feet above spillway crest with an ice load of 10,000 lb/ft;

c. PMF, water flowing over the top of dam at a depth of 5.03 feet.

The analyses performed indicate that the factors of safety against overturning and sliding are as follows:

		Factors of Safety	
	Case	Overturning	Sliding
a.	Reservoir at Elev. 1724.5	17.27	6.27
b.	Same as (a) plus an ice load of 10,000 lb/ft	2.35	2.09
c.	PMF, water at 5.03 feet over top of dam	4.91	2.05
d.	Reservoir at Elev. 1724; with seismic	6.03	4.40

The results of these analyses indicate that the structure is stable. However, the stability analyses performed only checked the overall stability of the structure acting as a mass. It is beyond the scope of this report to assess the integrity of the connections between the individual timber members of the structure and their ability to withstand the forces to which they are subjected.

d. Seismic Stability

This dam is located in Seismic Zone 2. A seismic stability analysis was performed for the structure in accordance with Corps of Engineers guidelines and using a seismic coefficient of 0.10. The analysis indicated acceptable factors of safety for both overturning and sliding.

SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety

The Phase 1 inspection of the Mill Pond Dam did not reveal conditions which constitute a hazard to human life or property. However, several deficiencies were noted which should be corrected. Cribs need to be refilled and displaced logs should be repaired. The wingwall downstream of the north abutment should be repaired, since failure of this wall could affect the reservoir drain.

b. Adequacy of Information

The information available for the preparation of this report was considered to be adequate for Phase 1 inspection purposes.

c. Need for Additional Investigations

A topographic survey of the area at the northern end of the dam, especially in the area beyond the end of the concrete wall, should be performed. This survey will provide information concerning the end-around potential for flow in this area.

d. Urgency

The deficiencies noted in the following section should be corrected within 6 months of the date of final approval of this report. The required survey should also be completed within 6 months and necessary modifications to this end of the dam made within 1 year.

7.2 RECOMMENDED MEASURES

1. Refill any cribs which are not completely filled with stone.
2. Repair the displaced timbers on the downstream face of the dam.
3. Repair the valve on the penstock so it will operate properly.
4. Make modifications necessary to prevent flood waters from flowing around the northern end of the dam.
5. Repair the spalling and deteriorated concrete on the wingwall which extends along the downstream channel from the north abutment.
6. Replace broken planks on the spillway section.
7. Develop an emergency action plan for notification of downstream residents.

APPENDIX A

PHOTOGRAPHS

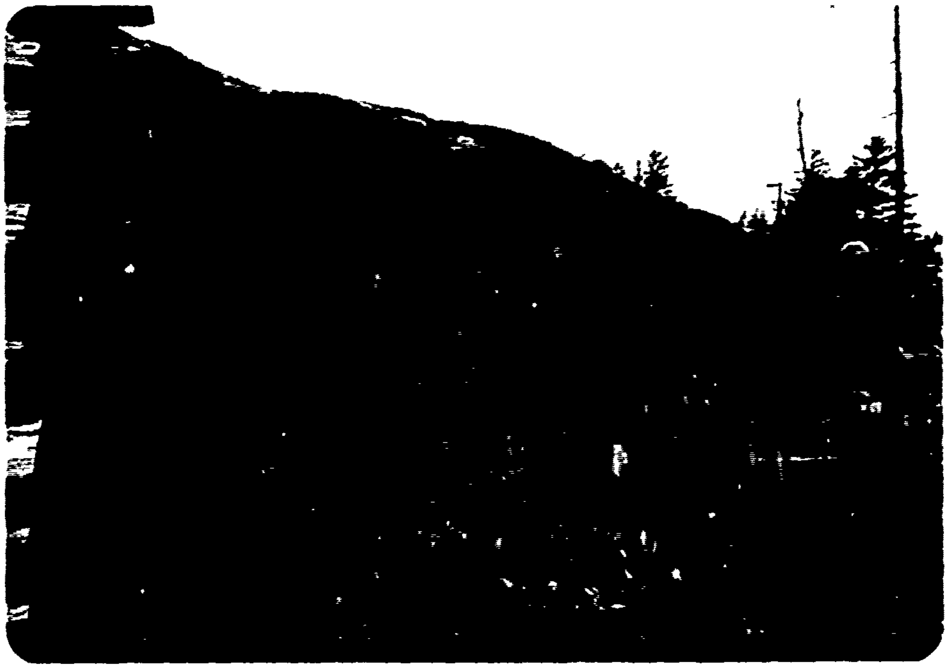
Concrete Wall which Extends from South Abutment

Concrete Wall which Extends from North Abutment

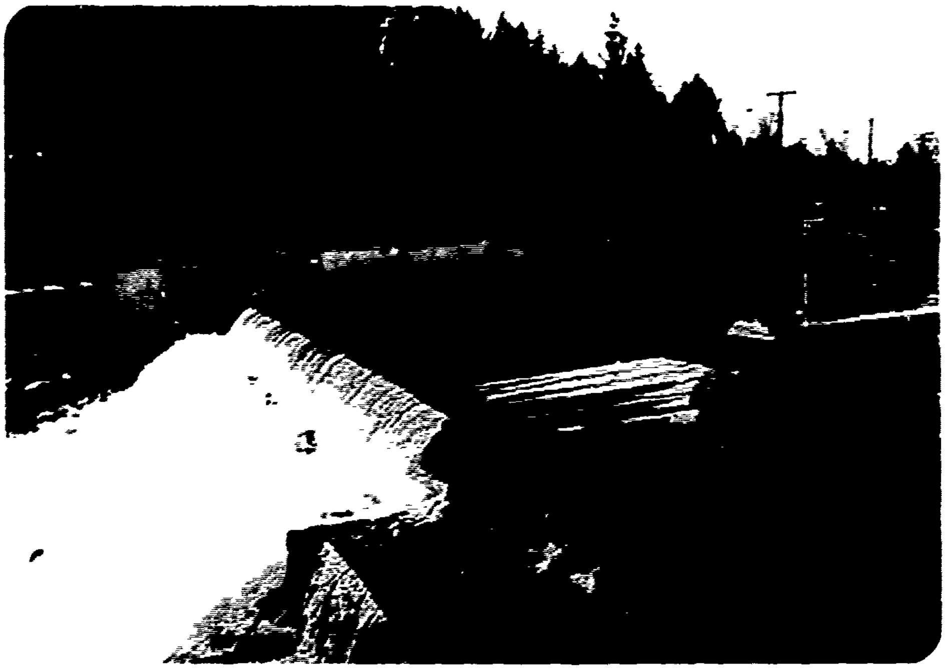
South Abutment of Dam

Sheet Piling Extending Through Upper
Spillway Crib on South Abutment

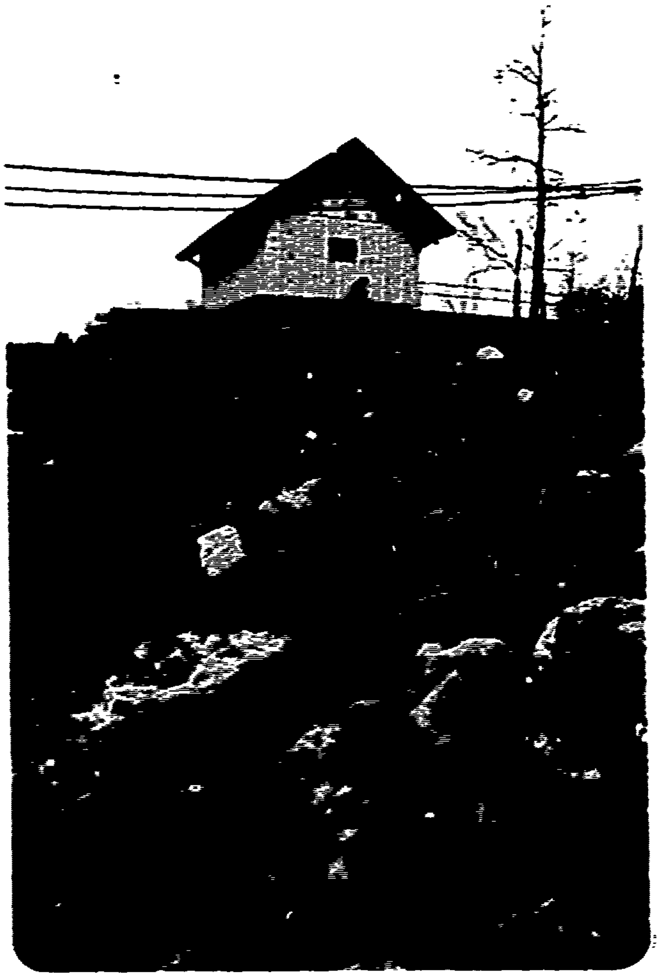
North Abutment, Gatehouse, and Deteriorated Wingwall



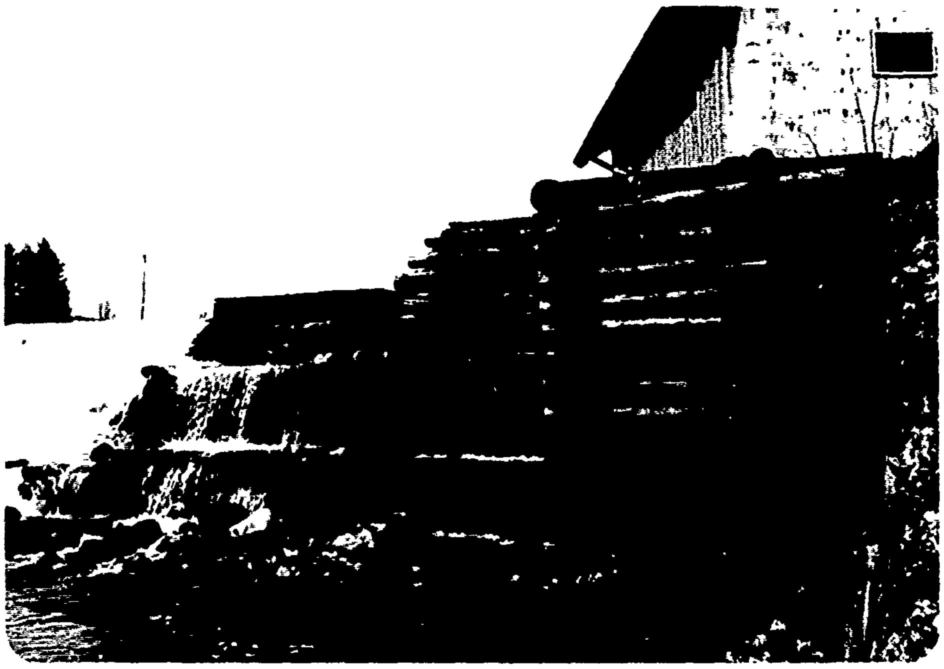
Close-Up View of Deteriorated Wingwall



Stepped Spillway Channel

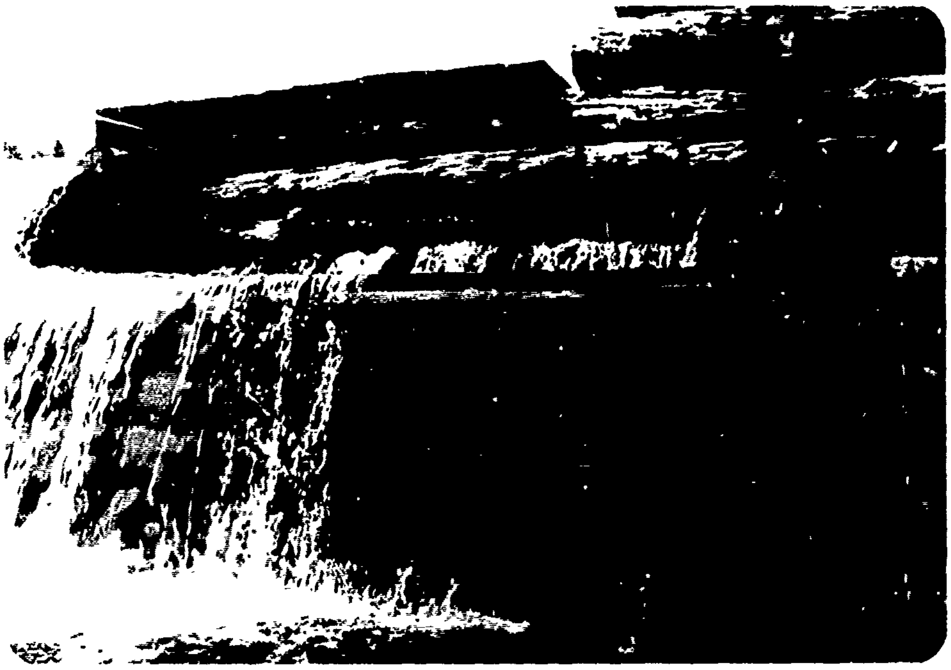


Gatehouse and 42 inch Outlet to Reservoir Drain Conduit



Water Flowing Through Dam and into Lower Cribs

Water Flowing Directly into the Lower Cribs



Water Flowing Through Dam
Note Displaced Timber on Lower Crib

Close-Up View of Displaced Timber Shown Above

APPENDIX B

VISUAL INSPECTION CHECKLIST

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam MILL POND DAM

Fed. I.D. # N.Y. 368 DEC Dam No. 201C-4289

River Basin LAKE CHAMPLAIN

Location: Town NORTH ELBA County ESSEX

Stream Name CHUBB RIVER

Tributary of AUSABLE RIVER

Latitude (N) 44° 17.0' Longitude (W) 73° 59'

Type of Dam TIMBER CRIB WITH CRUSHED STONE BACKFILL

Hazard Category C

Date(s) of Inspection 4/16/80

Weather Conditions 30° OVERCAST & SNOW

Reservoir Level at Time of Inspection 0.75' ABOVE 1ST STEP OF SPILL-CREST

b. Inspection Personnel R. WARRENDER W. LYNCK

c. Persons Contacted (Including Address & Phone No.) JOHN BARRY VILLAGE TRUSTEE LAKE PLACID, NEW YORK

d. History:

Date Constructed 1978 Date(s) Reconstructed ~~[illegible]~~

Designer SPENCER THEW, CANTON, NEW YORK

Constructed By

Owner VILLAGE OF LAKE PLACID

NO EMBANKMENT - THEREFORE SKIPPED No. 2.

(1) Erosion at Contact

(2) Seepage Along Contact

3) Drainage System

a. Description of System TIMBER CRIB - ROCKFILL - VERY POROUS - ALLOWS FLOW THRU DAM - NO ACTUAL DRAINAGE SYSTEM.

b. Condition of System

c. Discharge from Drainage System

4) Instrumentation (Momumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.) NONE

5) Reservoir

a. Slopes GRASS TREES AND NATURAL ROCK LINED BANKS

b. Sedimentation NONE APPARENT

c. Unusual Conditions Which Affect Dam NONE

6) Area Downstream of Dam

a. Downstream Hazard (No. of Homes, Highways, etc.) LARGE APPARTMENT BUILDING SEVERAL RESTAURANTS & STATE RTE.73

b. Seepage, Unusual Growth NO

c. Evidence of Movement Beyond Toe of Dam NO

d. Condition of Downstream Channel LARGE BOULDER FILL & WALLED SECTION DOWN PAST ROUTE 73 BRIDGE

7) Spillway(s) (Including Discharge Conveyance Channel)

NOTCHED TIMBERS (HEMLOCK-CREOSOTED) WITH 2x12 TIMBER PLANK DECK - VERTICAL INCLINED UPSTREAM PLANKING ON FACE

a. General TIMBER PLANKING IS FLEXIBLE IN SOME SPOTS DUE TO THE REMOVAL OF FILL MATERIAL FROM CRIB

THE 2ND SECTION FROM THE NORTH END - 2ND CRIB WAS MISSING MORE MATERIAL THAN ANY OTHERS

b. Condition of Service Spillway SATISFACTORY - ENIRELY SUBMERGED ONE TIMBER FROM LEVEL NO4 IS DISPLACED, NO SUBSIDENCE OR MISALIGNMENT - TIMBER PLANK DECK-OK - SOME OF BACKFILL MATERIAL IS MISSING

c. Condition of Auxiliary Spillway NONE - POTENTIAL FOR END AROUND EXTREME LEFT OF CONCRETE WALL - (NORTHERN END OF DAM)

d. Condition of Discharge Conveyance Channel DOWNSTREAM POOL FILL ENCROACHMENT FROM LEFT (NORTHERN) SIDE OF STREAM CHANNEL. POOL WAS DEEPENED AFTER GRAVEL FILL WASHED THROUGH THE DAM & FILLED DOWNSTREAM CHANNEL - DREDGING WAS USED TO REMOVE THIS MATERIAL.

8) Reservoir Drain/Outlet

Type: Pipe ______ PENSTOCK Conduit 7' DIA - ______ Other 42" DIA RCP EXTENSION THRU NEW GRAVEL & BOULDER FILL

Material: Concrete ______ Metal STEEL Other ______

Size: 7' DIAMETER TO 42" Length ______

Invert Elevations: Entrance ______ Exit ______

Physical Condition (Describe): Unobservable ✓

Material: ______

Joints: ______ Alignment ______

Structural Integrity: ______

Hydraulic Capability: WAS OPENED SLIGHTLY & FLOW WAS PASSING AT TIME OF INSPECTION

Means of Control: Gate ✓ Valve ______ Uncontrolled ______

Operation: Operable ✓ Inoperable ______ Other ______

Present Condition (Describe): REPORTED THAT IT IS NOT POSSIBLE TO FULLY CLOSE THE GATE

9) Structural

a. Concrete Surfaces NORTH ABUTMENT - 20" TOP WIDTH CONCRETE WALL

SOME CONCRETE CRACKING & SPALLING AT DOWNSTREAM END OF WINGWALL

NORTH ABUT. WALL HAS NEW CONCRETE CAP 3' HIGH ON TOP OF OLD WALL

SOUTH ABUT WALL - ENTIRELY NEW - BOTH THESE WALLS ARE IN GOOD SHAPE

b. Structural Cracking NONE OBSERVED

c. Movement - Horizontal & Vertical Alignment (Settlement) NONE NOTED

d. Junctions with Abutments or Embankments. NORTH ABUTMENT - IRREGULAR BACKFILL - HOLES & DEPRESSIONS ALONG DOWNSTREAM END OF ABUTMENT WALL

SOUTH ABUTMENT - SATISFACTORY

e. Drains - Foundation, Joint, Face NONE

f. Water Passages, Conduits, Sluices RESERVOIR DRAIN - PASSES THROUGH NORTH ABUTMENT

g. Seepage or Leakage SUBSTANTIAL LEAKAGE THROUGH CRIBS - AS WOULD BE EXPECTED - AT NORTHERN END SEEPAGE COMES THROUGH 1ST CRIB & PLUNGES INTO A GAP AT UPSTREAM END OF SECOND CRIB.

FLOW HAS REMOVED SOME MATERIAL - SEVERAL CRIBS ARE MISSING BACKFILL MATERIAL

h. Joints - Construction, etc.

i. Foundation

j. Abutments OKAY

k. Control Gates NONE

l. Approach & Outlet Channels SATISFACTORY

m. Energy Dissipators (Plunge Pool, etc.) TIMBER CRIB & DEEPENED TAILWATER POOL

n. Intake Structures

o. Stability

p. Miscellaneous FENCING ALONG TOP OF ABUTMENT WALLS IS OKAY

10) Appurtenant Structures (Power House, Lock, Gatehouse, Other)

a. Description and Condition

GATEHOUSE – CONTAINS CONTROL MECHANISM
FOR RESERVOIR DRAIN VALUE – VILLAGE IS
IN THE PROCESS OF RECONSTRUCTING THE OUTSIDE
OF THE BUILDING – STRUCTURALLY THE BUILDING IS
IN GOOD CONDITION.

APPENDIX C

HYDROLOGIC/HYDRAULIC
ENGINEERING DATA AND COMPUTATIONS

CHECK LIST FOR DAMS
HYDROLOGIC AND HYDRAULIC
ENGINEERING DATA

AREA-CAPACITY DATA:

	Elevation (ft.)	Surface Area (acres)	Storage Capacity (acre-ft.)
1) Top of Dam	1729.44	27	[illegible]
2) Design High Water (Max. Design Pool)			
3) Auxiliary Spillway Crest	[illegible]	25	[illegible]
4) Pool Level with Flashboards	[illegible]		
5) Service Spillway Crest	[illegible]	22	[illegible]

DISCHARGES

	Volume (cfs)
1) Average Daily	
2) Spillway @ Maximum High Water	[illegible]
3) Spillway @ Design High Water	
4) Spillway @ Auxiliary Spillway Crest Elevation	[illegible]
5) Low Level Outlet [illegible]	[illegible]
6) Total (of all facilities) @ Maximum High Water	
7) Maximum Known Flood	[illegible]

CREST: ELEVATION: [illegible]

Type: [illegible]

Width: [illegible] Length: [illegible]

Spillover [illegible]

Location

SPILLWAY:

PRINCIPAL		EMERGENCY
[illegible]	Elevation	[illegible]
[illegible]	Type	[illegible]
[illegible]	Width	[illegible]
	Type of Control	
[illegible]	Uncontrolled	[illegible]
	Controlled:	
	Type (Flashboards; gate)	
	Number	
	Size/Length	
	Invert Material	
	Anticipated Length of operating service	
	Chute Length	
	Height Between Spillway Crest & Approach Channel Invert (Weir Flow)	

OUTLET STRUCTURES/EMERGENCY DRAWDOWN FACILITIES:

Type: Gate ______ Sluice ______ Conduit ______ Penstock ______

Shape : ____

Size: ____

Elevations: Entrance Invert ______________________________

Exit Invert ______________________________

Tailrace Channel: Elevation ______________________________

HYDROMETEROLOGICAL GAGES:

Type : ____

Location: ____

Records:

Date - ____

Max. Reading - ____

FLOOD WATER CONTROL SYSTEM:

Warning System: ____

____

Method of Controlled Releases (mechanisms):

____

____

DRAINAGE AREA: [illegible]

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: [illegible]

Terrain - Relief: [illegible]

Surface - Soil: [illegible]

Runoff Potential (existing or planned extensive alterations to existing (surface or subsurface conditions)

[illegible]

Potential Sedimentation problem areas (natural or man-made; present or future)

[illegible]

Potential Backwater problem areas for levels at maximum storage capacity including surcharge storage:

[illegible]

[illegible]

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the Reservoir perimeter:

Location:

Elevation:

Reservoir:

Length @ Maximum Pool ________ (Miles)

Length of Shoreline (@ Spillway Crest) ________ (Miles)

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB	SHEET NO.	CHECKED BY	DATE
MILL POND DAM	1		
SUBJECT		**COMPUTED BY**	**DATE**
HYDROLOGIC/HYDRAULIC COMPUTATIONS		RLW	5/15/80

DRAINAGE AREA - ENTIRE BASIN 40.05 SQ. MI.

AREA CAN BE DIVIDED INTO THREE SUBBASINS

SUBBASIN No. 1 - AREA TO NORTH OF DAM

DRAINAGE AREA OF LAKE PLACID

AREA = 20.89 SQ. MI.

SNYDER HYDROGRAPH PARAMETERS - SUB-BASIN 1

$L = 7.20$ mi $L_{ca} = 2.25$ mi

PMP = 16.5 in $C_t \rightarrow$ USE 2.0

$t_p = C_t (L \cdot L_{cA})^{.3} = 2.0 [7.2 \cdot 2.25]^{.3} = 4.61$ hrs

$t_r = \frac{t_p}{5.5} = \frac{4.61}{5.5} = .84$ Hours — USE $\frac{1}{2}$ hour increments

$t_{pr} = 4.61 + .25 (.50 - .84) = 4.53$

HR #33 PMP RAINFALL

Zone 1   PMP RAIN = 16.5 IN (200 mi² - 24 hr)

6 hr = 102%   24 hr = 124%

12 hr = 114%   48 hr = 133%

$TRSPC = 1 - \frac{.[illegible]}{(20.07)^{.0718}} = .855$

BASE FLOW 2 cfs/sq mi = 2 (20.89) = 41.78 USE 40 cfs

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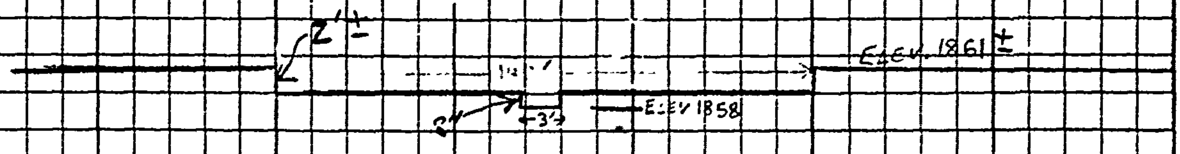
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB MILL POND DAM	SHEET NO. 2	CHECKED BY	DATE
SUBJECT HYDROLOGIC/HYDRAULIC COMPUTATIONS		COMPUTED BY RLW	DATE 5/5/80

OUTFLOW COMPUTATIONS FOR LAKE PLACID DAM



W.S. AT ELEV. 1858.67

$Q = CLH^{3/2} = 2.6(3)(.67)^{3/2} = 4.3\text{ cfs} \approx 5\text{ cfs}$

W.S. AT ELEV. 1861

$Q = C_1L_1H_1^{3/2} + C_2L_2H_2^{3/2} = 2.6(3)(3)^{3/2} + (2.6)(137)(2.33)^{3/2}$

$Q = 40 + 1267 = 1307\text{ cfs} \approx 1300\text{ cfs}$

SURFACE AREA COMPUTATIONS – TAKEN FROM MAP OF LAKE

PLANIMETERED VALUES – LAKE SURFACE

LAKE SURFACE = 25.37 in²
BUCK ISLAND − 30 in²
MOOSE ISLAND − 4.50 in²
21.36 in²

SURFACE AREA AT ELEV. 1857 = (21.36 in²)(111.4 AC/IN²) = 2379 ACRES

PLANIMETERED VALUES – DEPTH OF 20' BELOW LAKE SURFACE

LAKE AREA 18.83
MOOSE ISLAND − 5.21
13.62 in²

SURFACE AREA AT ELEV. 1837 = 1517 ACRES

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB MILL POND DAM	SHEET NO. 2A	CHECKED BY	DATE
SUBJECT HYDROLOGIC / HYDRAULIC COMPUTATIONS		COMPUTED BY RLW	DATE 5/[illegible]

STORAGE CAPACITY COMPUTATIONS

CAPACITY AT ELEVATION 1857

$$V = \pi R^2 \frac{h}{3} = (2379\,\text{Acres})\left(\frac{150'}{3}\right) = 118{,}950\ \text{Ac-Ft}$$

CAPACITY AT ELEVATION 1837

$$V = (1517\,\text{Ac})\left(\frac{130'}{3}\right) = 65{,}737\ \text{Ac Ft}$$

CAPACITY AT ELEVATION 1861

SURFACE AREA = 2574 Ac

$$V = (2574)\left(\frac{154'}{3}\right) = 132\,132\ \text{Ac Ft}$$

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB MILL POND DAM	SHEET NO. 3	CHECKED BY	DATE
SUBJECT HYDROLOGIC / HYDRAULIC COMPUTATIONS		COMPUTED BY RLW	DATE 6/9/80

SUBBASIN No. 2 - CENTER PORTION OF DRAINAGE AREA

AREA = 3.87 mi^2

SNYDER HYDROGRAPH PARAMETERS - SUBBASIN 2

$L = 3.4 mi$ $L_{ca} = .7 mi.$

$PMP = 16.5 IN$ $C_t \rightarrow$ USE 2.0

$t_p = 2.0 [3.4 \cdot .7]^{.3} = 2.60$

$t_r = \frac{2.60}{5.5} = .47$ USE ½ HOUR

$t_p = 2.60 + .25(.47 - .5) = 2.59$

$TRSPC = 1 - \frac{.3008}{(400 mi^2)^{.1978}} = .856$

BASEFLOW → USE 40cfs

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB: [illegible]
SHEET NO.: 4
CHECKED BY:
DATE:
SUBJECT: HYDROLOGIC/HYDRAULIC CALC
COMPUTED BY: RLW
DATE: 5/1[illegible]/80

SUBBASIN No. 3 – SOUTHERN PORTION – [illegible]

AREA = 15.29 mi^2

SNYDER'S HYDROGRAPH PARAMETERS – SUBBASIN 3

$L = 9.40$ mi $L_{ca} = 4.90$

[illegible] = 16.3 [illegible] C_t → USE 2.0

$t_p = (2.0)(9.40 \cdot 4.90)^{0.3} = 6.31$

$t_r = \frac{t_p}{5.5} = \frac{6.31}{5.5} = 1.15$ USE ½ HOUR [illegible]

$t_{pR} = 6.31 + .25(1.15 - .5) = 6.60$

TRSPC = 1 − [illegible] .9775 = .855

BASEFLOW 2 cfs/sq. mi = 2(18.18) = 38.36   USE 40 cfs

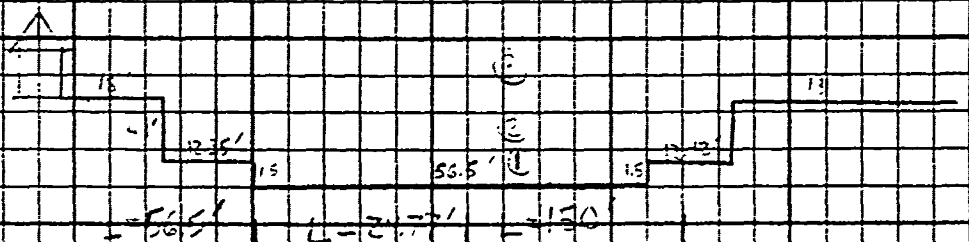
00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB MILL POND DAM	SHEET NO. 5	CHECKED BY	DATE
SUBJECT HYDROLOGIC/HYDRAULIC COMPUTATIONS		COMPUTED BY RLW	DATE 5/2[illegible]

MILL POND DAM - OUTFLOW COMPUTATIONS



ELEVATION	H_1	C_1	Q_1	H_2	C_2	Q_2	H_3	C_3	Q_3	Q_{TOTAL}
1724	0	—	—	—	—	—	—	—	—	0
1725.5	1.5	2.66	276.1	0	—	—	—	—	—	276.1
1727	3	2.7	793	1.5	2.65	121	—	—	—	914
1728	4	2.75	1243	2.5	2.65	259	—	—	—	1502
1729	5	2.79	1762	3.5	2.65	430	—	—	—	2192
1729.44	5.44	2.8	2007	3.94	2.66	515	0	—	—	2522
1730	6	2.8	2325	4.5	2.66	629	.56	2.6	163	3117

STAGE-STORAGE DATA TAKEN FROM PERMIT APPLICATION

PENSTOCK DISCHARGE CAPACITY

DIAMETER AT OUTLET = 42" $A = \pi\left(\frac{21}{12}\right)^2 = 9.62$

$$Q = A\sqrt{\frac{2gH}{1+K_e+K_b+K_fL}} = 9.62\sqrt{\frac{2(32.2)H}{1+0+0+.00784(40)}}$$

ELEV	H	Q
1724	8	190
1725.5	9.5	208
1729.44	13.44	345

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*************************************                        *************************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)                             NEW YORK STATE
DAM SAFETY VERSION        JULY 1978                          DEPT OF ENVIRONMENTAL CONSERVATION
  LAST MODIFICATION 26 FEB 79                                FLOOD PROTECTION BUREAU
   MODIFIED FOR HONEYWELL SEP 79
*************************************                        *************************************
    1              A1  MILL POND DAM
    2              A2  ANALYSIS OF PMF WITH RATIOS
    3              A3  DRAINAGE AREA WITH THREE SUBBASINS
    4              B    150       0      30       0       0       0       0       0       0       0
    5              B1     5

    6              J      1       3       1

    7              J1   .15      .5     1.0

    8              K      0   SUBB1                       2               1

    9              K1  INFLOW HYDROGRAPH SUBBASIN NO 1

   10              M      1       1   20.89              40.07    .855                    1

   11              P      0    16.5      95     103     119     125

   12              T                                                      1      .1

   13              W   4.53    .625

   14              X     40      40       1

   15              K      1   DAM1                        2               1

   16              K1  ROUTED HYDROGRAPH THROUGH LAKE PLACID

   17              Y                            1       1

   18              Y1     1                                          -1859      -1

   19              Y4  1858  1858.7    1861

   20              Y5     0       5    1300

   21              $S     0  118950  132132

   22              $E  1737    1857    1861

   23              $$  1859

   24              $D  1861     3.0     1.5     150

   25              K      0   SUBB2                       2               1

   26              K1  INFLOW HYDROGRAPH SUBASIN NO 2

   27              M      1       1    3.37              40.07    .855                    1

   28              P      0    16.5      95     106     119     125

   29              T                                                      1      .1

   30              W   2.59    .625

   31              X     40      40       1
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32          K       0    [illegible]                                1
33          KI INFLOW HYDROGRAPH SUBAREA  NO 3
34          M       1       1   15.29           40.07    .955                    1
35          P       0    16.5      95     106     117     125
36          T                                                       1      .1
37          W    6.60    .625
38          X      .0     .05       1
39          K       2   COMBN                       2               1
40          KI COMBINED INFLOW HYDROGRAPH
41          K       1   MILLP                                       1
42          KI ROUTE COMBINED HYDROGRAPH THROUGH MILL POND DAM
43          Y                               1       1
44          Y1      1                                           -1724      -1
45          Y4   1724  1725.5    1727    1728    1729 1729.44    1730
46          Y5      0   276.1     914    1502    2192    2522    3117
47          $A     89     137     216     266
48          $E   1724  1725.5    1728 1729.44
49          $$   1724
50          $D1729.4     3.0     1.5     230
51          K      99
52          A
53          A
54          A
55          A
56          A
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TABLE VII   ORDER OF SEQUENCE OF THE STREAM ROUTING CALCULATIONS
            RUNOFF HYDROGRAPH AT           SUBR1
            ROUTE HYDROGRAPH TO             RAF1
            RUNOFF HYDROGRAPH AT           SUBR2
            RUNOFF HYDROGRAPH AT           SUBR3
            COMBINE 3 HYDROGRAPHS AT   COMB
            ROUTE HYDROGRAPH TO            HILLP
            END OF NETWORK
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********************************                                                  ********************************
FLOOD HYDROGRAPH PACKAGE (HEC-1)                                                  NEW YORK STATE
DAM SAFETY VERSION       JULY 1978                                                DEPT OF ENVIRONMENTAL CONSERVATION
  LAST MODIFICATION  26 FEB 79                                                    FLOOD PROTECTION BUREAU
   MODIFIED FOR HONEYWELL APR 79
********************************                                                  ********************************

RUN DATE [illegible]/09/[illegible]
                        MILL POND DAM
                        ANALYSIS PMF WITH RATIOS
                        DRAINAGE AREA WITH THREE SUBBASINS

                                                  JOB SPECIFICATION
             NQ       NHR      NMIN      IDAY       IHR      IMIN     METRC      IPLT      IPRT     NSTAN
            150         0        30         0         0         0         0         0         0         0
                                         JOPER       NWT     LROPT     TRACE
                                             5         0         0         0

                                      MULTI-PLAN ANALYSES TO BE PERFORMED
                                           NPLAN= 1 NRTIO= 3 LRTIO= 1
                   RTIOS=   0.15   0.50   1.00


          **********          **********          **********          **********          **********

                                           SUB-AREA RUNOFF COMPUTATION

                 INFLOW HYDROGRAPH SUBBASIN NO 1
                                ISTAQ     ICOMP     IECON     ITAPE      JPLT      JPRT     INAME    ISTAGE     IAUTO
                                SUB01         0         0         0         2         0         1         0         0

                                                  HYDROGRAPH DATA
                  IHYDG      IUHG     TAREA      SNAP     TRSDA     TRSPC     RATIO     ISNOW     ISAME     LOCAL
                      1         1     23.89        0.     40.07      0.86        0.         0         1         0

                                                  PRECIP DATA
                           SPFE       PMS        R6       R12       R24       R48       R72       R96
                             0.     16.50     95.00    108.00    119.00    125.00        0.        0.

                                                  LOSS DATA
             LROPT     STRKR     DLTKR     RTIOL     ERAIN     STRKS     RTIOK     STRTL     CNSTL     ALSMX     RTIMP
                 0        0.        0.      1.00        0.        0.      1.00      1.00      0.10        0.        0.

                                              UNIT HYDROGRAPH DATA
                                      TP=  4.53      CP=0.63      NTA=  0

                                                 RECESSION DATA
                                  STRTQ=    40.00      QRCSN=    40.00      RTIOR= 1.00
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC=10.00 AND R= 8.33 INTERVALS

                 UNIT HYDROGRAPH 50 END-OF-PERIOD ORDINATES, LAG=  4.50 HOURS, CP= 0.63  VOL= 1.00
              69.       234.       511.       936.      1123.      1430.      1677.      1840.      1918.      1894.
            1747.      1590.      1374.      1219.      1081.       956.       849.       753.       668.       592.
             525.       466.       413.       366.       325.       288.       255.       226.       201.       178.
             159.       140.       124.       110.        98.        87.        77.        69.        60.        53.
              47.        42.        37.        33.        29.        26.        23.        20.        18.        16.

                                                END-OF-PERIOD FLOW
       MO.DA   HR.MN   PERIOD    RAIN    EXCS    LOSS     COMP Q        MO.DA   HR.MN   PERIOD    RAIN    EXCS    LOSS     COMP Q
        1.01    0.30        1    0.00      0.    0.00        40.         1.02   14.00       76    0.80    0.75    0.05      2940.
        1.01    1.00        2    0.00      0.    0.00        40.         1.02   14.30       77    1.01    0.96    0.05      3689.
        1.01    1.30        3    0.00      0.    0.00        40.         1.02   15.00       78    1.01    0.96    0.05      4665.
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1.01   2.30    5  [illegible]  0.    [illegible]   40.    1.02  16.00   80  3.87  3.82  0.05   7470.
1.01   3.00    6  [illegible]  0.    [illegible]   40.    1.02  16.30   81  0.94  0.89  0.05   9548.
1.01   3.30    7  0.00  0.    0.00    40.    1.02  17.00   82  0.94  0.89  0.05  11695.
1.01   4.00    8  0.00  0.    0.00    40.    1.02  17.30   83  0.74  0.69  0.05  14301.
1.01   4.30    9  0.00  0.    0.00    40.    1.02  18.00   84  0.74  0.69  0.05  16634.
1.01   5.00   10  0.00  0.    0.00    40.    1.02  18.30   85  0.08  0.03  0.05  18707.
1.01   5.30   11  0.00  0.    0.00    40.    1.02  19.00   86  0.08  0.03  0.05  20271.
1.01   6.00   12  0.01  0.    0.01    40.    1.02  19.30   87  0.08  0.03  0.05  21200.
1.01   6.30   13  0.01  0.    0.01    40.    1.02  20.00   88  0.08  0.03  0.05  21469.
1.01   7.00   14  0.01  0.    0.01    40.    1.02  20.30   89  0.08  0.03  0.05  21043.
1.01   7.30   15  0.01  0.    0.01    40.    1.02  21.00   90  0.08  0.03  0.05  19922.
1.01   8.00   16  0.01  0.    0.01    40.    1.02  21.30   91  0.08  0.03  0.05  18401.
1.01   8.30   17  0.01  0.    0.01    40.    1.02  22.00   92  0.08  0.03  0.05  16780.
1.01   9.00   18  0.01  0.    0.01    40.    1.02  22.30   93  0.08  0.03  0.05  15140.
1.01   9.30   19  0.01  0.    0.01    40.    1.02  23.00   94  0.08  0.03  0.05  13559.
1.01  10.00   20  0.01  0.    0.01    40.    1.02  23.30   95  0.08  0.03  0.05  12112.
1.01  10.30   21  0.01  0.    0.01    40.    1.03   0.     96  0.08  0.03  0.05  10829.
1.01  11.00   22  0.01  0.    0.01    40.    1.03   0.30   97  0.    0.    0.     9689.
1.01  11.30   23  0.01  0.    0.01    40.    1.03   1.00   98  0.    0.    0.     8673.
1.01  12.00   24  0.01  0.    0.01    40.    1.03   1.30   99  0.    0.    0.     7764.
1.01  12.30   25  0.01  0.    0.01    40.    1.03   2.00  100  0.    0.    0.     6949.
1.01  13.00   26  0.03  0.    0.03    40.    1.03   2.30  101  0.    0.    0.     6214.
1.01  13.30   27  0.04  0.    0.04    40.    1.03   3.00  102  0.    0.    0.     5551.
1.01  14.00   28  0.04  0.    0.04    40.    1.03   3.30  103  0.    0.    0.     4952.
1.01  14.30   29  0.05  0.    0.05    40.    1.03   4.00  104  0.    0.    0.     4410.
1.01  15.00   30  0.05  0.    0.05    40.    1.03   4.30  105  0.    0.    0.     3922.
1.01  15.30   31  0.06  0.    0.06    40.    1.03   5.00  106  0.    0.    0.     3485.
1.01  16.00   32  0.20  0.    0.20    40.    1.03   5.30  107  0.    0.    0.     3094.
1.01  16.30   33  0.05  0.    0.05    40.    1.03   6.00  108  0.    0.    0.     2748.
1.01  17.00   34  0.05  0.    0.05    40.    1.03   6.30  109  0.    0.    0.     2442.
1.01  17.30   35  0.04  0.    0.04    40.    1.03   7.00  110  0.    0.    0.     2169.
1.01  18.00   36  0.04  0.    0.04    40.    1.03   7.30  111  0.    0.    0.     1927.
1.01  18.30   37  0.00  0.    0.00    40.    1.03   8.00  112  0.    0.    0.     1712.
1.01  19.00   38  0.00  0.    0.00    40.    1.03   8.30  113  0.    0.    0.     1521.
1.01  19.30   39  0.00  0.    0.00    40.    1.03   9.00  114  0.    0     0.     1352.
1.01  20.00   40  0.00  0.    0.00    40.    1.03   9.30  115  0.    0.    0.     1202.
1.01  20.30   41  0.00  0.    0.00    40.    1.03  10.00  116  0.    0.    0.     1069.
1.01  21.00   42  0.00  0.    0.00    40.    1.03  10.30  117  0.    0.    0.      951.
1.01  21.30   43  0.00  0.    0.00    40.    1.03  11.00  118  0.    0.    0.      846.
1.01  22.00   44  0.00  0.    0.00    40.    1.03  11.30  119  0.    0.    0.      753.
1.01  22.30   45  0.00  0.    0.00    40.    1.03  12.00  120  0.    0.    0.      671.
1.01  23.00   46  0.00  0.    0.00    40.    1.03  12.30  121  0.    0.    0.      598.
1.01  23.30   47  0.00  0.    0.00    40.    1.03  13.00  122  0.    0.    0.      533.
1.02   0.     48  0.00  0.    0.00    40.    1.03  13.30  123  0.    0.    0.      469.
1.02   0.30   49  0.05  0.    0.05    40.    1.03  14.00  124  0.    0.    0.      411.
1.02   1.00   50  0.05  0.    0.05    40.    1.03  14.30  125  0.    0.    0.      358.
1.02   1.30   51  0.05  0.00  0.05    40.    1.03  15.00  126  0.    0.    0.      312.
1.02   2.00   52  0.05  0.00  0.05    40.    1.03  15.30  127  0.    0.    0.      257.
1.02   2.30   53  0.05  0.00  0.05    41.    1.03  16.00  128  0.    0.    0.      228.
1.02   3.00   54  0.05  0.00  0.05    41.    1.03  16.30  129  0.    0.    0.      190.
1.02   3.30   55  0.05  0.00  0.05    43.    1.03  17.00  130  0.    0.    0.      118.
1.02   4.00   56  0.05  0.00  0.05    45.    1.03  17.30  131  0.    0.    0.       97.
1.02   4.30   57  0.05  0.00  0.05    47.    1.03  18.00  132  0.    0.    0.       78.
1.02   5.00   58  0.05  0.00  0.05    50.    1.03  18.30  133  0.    0.    0.       64.
1.02   5.30   59  0.05  0.00  0.05    53.    1.03  19.00  134  0.    0.    0.       51.
1.02   6.00   60  0.05  0.00  0.05    57.    1.03  19.30  135  0.    0.    0.       50.
1.02   6.30   61  0.15  0.10  0.05    67.    1.03  20.00  136  0.    0.    0.       48.
1.02   7.00   62  0.15  0.10  0.05    95.    1.03  20.30  137  0.    0.    0.       47.
1.02   7.30   63  0.15  0.10  0.05   159.    1.03  21.00  138  0.    0.    0.       46.
1.02   8.00   64  0.15  0.10  0.05   234.    1.03  21.30  139  0.    0.    0.       45.
1.02   8.30   65  0.15  0.10  0.05   349.    1.03  22.00  140  0.    0.    0.       44.
1.02   9.00   66  0.15  0.10  0.05   496.    1.03  22.30  141  0.    0.    0.       43.
1.02   9.30   67  0.15  0.10  0.05   667.    1.03  23.00  142  0.    0.    0.       42.
1.02  10.00   68  0.15  0.10  0.05   855.    1.03  23.30  143  0.    0.    0.       42.
                                                                 144  0.    0.    0.       41.
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 1.   [illegible]  71  [illegible]  .10  [illegible]   15[illegible].        [illegible]  1.00      146  0.    0.    0.     40.
 1.[illegible]  12.00  72  0.12  0.10  [illegible]   157[illegible].      1.04  1.30  -   147  0.    0.    0.     40.
 1.[illegible]  12.30  73  0.07  0.02  0.[illegible]  1753.      1.04  2.00      148  0.    0.    0.     40.
 1.[illegible]  13.00  74  0.07  0.02  0.05  2005.      1.04  2.30      149  0.    0.    0.     40.
 1.[illegible]  13.30  75  0.00  0.75  [illegible]  2391.      1.04  3.00      150  0.    0.    0.     40.

                                                                   SUM  17.63  14.38   3.25   391794.
                                                                      ( 448.)( 365.)(  83.)(11094.09)

                     PEAK     6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
          CFS       21469.    18050.     7889.      2719.        391739.
          CMS        608.       511.      223.        77.         11093.
       INCHES                  8.04      14.05      14.53          14.54
           MM                204.15     356.92     369.05         369.23
        AC-FT                 8950.     15648.     16179.          16188.
   THOUS CU M                11040.     19301.     19957.          19967.
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*1/1*

                                   HYDROGRAPH AT STA SUB1 FOR PLAN 1, RTIO 1
        6.          6.          5.          5.          5.          6.          6.          6.          6.          6.
        6.          6.          5.          6.          5.          6.          6.          6.          6.          6.
        6.          6.          6.          6.          5.          6.          6.          6.          6.          6.
        6.          6.          6.          6.          5.          5.          6.          6.          6.          6.
        6.          6.          6.          5.          5.          6.          6.          6.          6.          6.
        6.          6.          6.          5.          6.          7.          7.          8.          8.          9.
       10.         14.         22.         35.         32.         74.        100.        124.        157.        166.
      217.        237.        203.        331.        757.        441.        553.        700.        800.       1120.
     1432.       1784.       2145.       2495.       2005.       3041.       3180.       3220.       3156.       2988.
     2760.       2517.       2271.       2036.       1817.       1624.       1452.       1301.       1165.       1042.
      932.        832.        763.        562.        587.        523.        404.        412.        366.        325.
      259.        257.        220.        213.        131.        160.        143.        127.        113.        101.
       99.         50.         70.         62.         54.         47.         40.         34.         26.         18.
       15.         12.         10.          8.          7.          7.          7.          7.          7.          7.
        6.          6.          6.          6.          5.          6.          6.          6.          6.          6.

                      PEAK      6-HOUR     24-HOUR     72-HOUR   TOTAL VOLUME
            CFS      3220.       2757.       1193.        406.         58761.
            CMS        91.         77.         34.         12.          1664.
         INCHES                   1.21        2.11        2.18           2.18
             MM                  30.62       53.54       55.36          55.39
          AC-FT                  1343.       2347.       2427.          2428.
     THOUS CU M                  1656.       2895.       2994.          2995.

                                   HYDROGRAPH AT STA SUB1 FOR PLAN 1, RTIO 2
       20.         20.         20.         20.         20.         20.         20.         20.         20.         20.
       20.         20.         20.         20.         20.         20.         20.         20.         20.         20.
       20.         20.         20.         20.         20.         20.         20.         20.         20.         20.
       20.         20.         20.         20.         20.         20.         20.         20.         20.         20.
       20.         20.         20.         20.         21.         20.         20.         20.         20.         20.
       20.         20.         20.         21.         21.         22.         24.         25.         27.         28.
       33.         48.         75.        117.        175.        243.        334.        427.        525.        621.
      710.        769.        876.       1004.       1195.       1470.       1845.       2332.       2934.       3735.
     4774.       5947.       7150.       8317.       9351.      10130.      10400.      10735.      10521.       9961.
     9269.       8290.       7570.       6700.       6055.       5414.       4849.       4337.       3802.       3474.
     3107.       2778.       2476.       2218.       1961.       1742.       1547.       1374.       1221.       1085.
      963.        856.        750.        674.        601.        534.        475.        423.        377.        335.
      299.        267.        234.        206.        172.        156.        134.        114.         95.         59.
       44.         39.         32.         26.         23.         24.         23.         23.         22.         22.
       21.         21.         21.         20.         20.         20.         20.         20.         20.         20.

                      PEAK      6-HOUR     24-HOUR     72-HOUR   TOTAL VOLUME
            CFS     10735.       9025.       3945.       1360.        195869.
            CMS       304.        256.        112.         38.          5546.
         INCHES                   4.02        7.03        7.26           7.27
             MM                 102.08      178.46      184.52         184.62
          AC-FT                  4475.       7824.       8090.          8094.
     THOUS CU M                  5520.       9651.       9978.          9984.

                                   HYDROGRAPH AT STA SUB1 FOR PLAN 1, RTIO 3
       40.         40.         40.         40.         40.         40.         40.         40.         40.         40.
       40.         40.         40.         40.         40.         40.         40.         40.         40.         40.
       40.         40.         40.         40.         40.         40.         40.         40.         40.         40.
       40.         40.         40.         40.         40.         40.         40.         40.         40.         40.
       40.         40.         40.         40.         40.         40.         40.         40.         40.         40.
       40.         40.         41.         41.         43.         45.         47.         50.         53.         57.
       67.         96.        150.        234.        347.        426.        667.        859.       1050.       1242.
     1620.       1970.       1753.       2003.       2391.       2940.       3689.       4465.       5460.       7470.
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[illegible] [illegible] [illegible] [illegible]   12112.  [illegible]   9736.   8673.   7764.   6545.
[illegible]   5531.   4932.   4413.   3922.   3495.   3094.   2743.   2442.   2169.
  1927.   1712.   1521.   1362.   1202.   1069.    951.    846.    753.    671.
   597.    532.    459.    411.    354.    312.    267.    226.    190.    118.
    97.     75.     64.     51.     50.     48.     47.     46.     45.     44.
    43.     42.     42.     41.     40.     40.     40.     40.     40.     40.

                     PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
           CFS     21467.    18050.      7889.      2719.       391730.
           CMS       608.      511.       223.        77.        11093.
        INCHES                 8.04      14.05      14.53         14.54
            MM               204.15     356.92     369.05        369.23
         AC-FT                 8950.     15646.     16179.        16188.
    THOUS CU M                11040.     19301.     19957.        19967.


   **********          **********          **********          **********          **********

                                  HYDROGRAPH ROUTING

      ROUTED HYDROGRAPH THROUGH LAKE PLACID
                        ISTAQ   ICOMP   IECON   ITAPE    JPLT    JPRT   INAME  ISTAGE   IAUTO
                         DAM1       1       0       0       2       0       1       0       0
                                            ROUTING DATA
                QLOSS   CLOSS     AVG    IRES   ISAME    IOPT    IPMP            LSTR
                   0.      0.      0.       1       1       0       0               0

                        NSTPS   NSTDL     LAG   AMSKK       X     TSK   STORA  ISPRAT
                            1       0       0      0.      0.      0.  -1858.      -1

STAGE      1858.00     1858.70     1861.00

 FLOW           0.        5.00     1300.00

  CAPACITY=           0.     118950.     132132.

ELEVATION=        1707.       1857.       1861.

                  CREL   SPWID   COQW    EXPW   ELEVL    COQL   CAREA    EXPL
                1858.0      0.     0.      0.      0.      0.      0.      0.

                                      DAM DATA
                              TOPEL    COQD    EXPD   DAMWID
                             1861.0     3.0     1.5     150.

                          STATION   DAM1, PLAN 1, RATIO 1

                          END-OF-PERIOD HYDROGRAPH ORDINATES

                                    OUTFLOW
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
        0.        0.        0.        0.        0.        0.        0.        0.        0.        1.
        1.        1.        1.        1.        1.        2.        2.        2.        2.        3.
        3.        3.        3.        4.        4. [illegible]      4.        4.        4.        4.
        5.        5.        5.        5.        5. [illegible]      5.        5.        5.        7.
        9.       10.       12.       14.       15.       16.       17.       18.       18.       19.
       20.       20.       20.       21.       21.       21.       21.       21.       22.       22.
```

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     21.       21.       21.       21.       21.       21.       21.       21.       21.       20.

                                        STORAGE
 122246.   122246.   122246.   122247.   122247.   122247.   122247.   122248.   122248.   122248.
 122249.   122249.   122249.   122249.   122249.   122250.   122250.   122250.   122250.   122251.
 122251.   122251.   122251.   122252.   122252.   122252.   122252.   122253.   122253.   122253.
 122253.   122254.   122254.   122254.   122254.   122255.   122255.   122255.   122255.   122256.
 122256.   122256.   122257.   122257.   122257.   122257.   122257.   122258.   122258.   122258.
 122258.   122259.   122259.   122259.   122259.   122260.   122260.   122260.   122260.   122261.
 122261.   122262.   122264.   122264.   122266.   122268.   122272.   122275.   122282.   122289.
 122298.   122307.   122317.   122327.   122343.   122359.   122380.   122406.   122436.   122475.
 122532.   122599.   122680.   122776.   122885.   123010.   123134.   123266.   123398.   123525.
 123644.   123752.   123851.   123940.   124017.   124090.   124154.   124211.   124261.   124307.
 124347.   124384.   124416.   124445.   124470.   124493.   124513.   124531.   124547.   124561.
 124574.   124584.   124594.   124602.   124610.   124616.   124622.   124627.   124631.   124634.
 124637.   124640.   124642.   124644.   124646.   124647.   124648.   124649.   124649.   124649.
 124649.   124648.   124648.   124647.   124647.   124646.   124646.   124645.   124645.   124644.
 124643.   124643.   124642.   124642.   124641.   124640.   124640.   124639.   124639.   124638.

                                         STAGE
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.1    1858.1
  1858.1    1858.1    1858.1    1858.2    1858.2    1858.2    1858.3    1858.3    1858.3    1858.4
  1858.4    1858.5    1858.5    1858.5    1858.5    1858.6    1858.6    1858.6    1858.6    1858.6
  1858.6    1858.6    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7
  1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7
  1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7
  1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7
  1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7    1858.7

PEAK OUTFLOW IS        22. AT TIME  65.00 HOURS

                          PEAK     6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
                CFS        22.        21.        17.         6.            866.
                CMS         1.         1.         0.         0.             25.
             INCHES                  0.01       0.03       0.03           0.03
                 MM                  0.24       0.75       0.82           0.82
              AC-FT                   11.        33.        36.            36.
          THOUS CU M                  13.        41.        44.            44.
```

```
                              STATION   DAM1, PLAN 1, RATIO 2

                           END-OF-PERIOD HYDROGRAPH ORDINATES

                                        OUTFLOW
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
      0.        0.        1.        1.        1.        1.        1.        1.        1.        2.
      2.        3.        3.        4.        5.       43.      116.      190.      264.      334.
    399.      458.      511.      558.      599.      635.      667.      694.      718.      739.
    757.      773.      786.      797.      805.      813.      819.      823.      827.      829.
    830.      831.      831.      830.      829.      827.      824.      822.      819.      816.
    812.      808.      804.      800.      795.      792.      787.      782.      778.      773.
    767.      762.      757.      752.      747.      742.      737.      732.      727.      722.
    717.      712.      707.      703.      698.      693.      688.      684.      679.      674.

                                        STORAGE
 122246.   122247.   122248.   122249.   122250.   122250.   122251.   122252.   122253.   122254.
 122254.   122255.   122256.   122257.   122258.   122258.   122259.   122260.   122261.   122262.
 122262.   122263.   122264.   122265.   122266.   122266.   122267.   122268.   122269.   122270.
 122270.   122271.   122272.   122273.   122274.   122274.   122275.   122276.   122277.   122278.
 122278.   122279.   122280.   122281.   122282.   122283.   122283.   122284.   122285.   122286.
 122287.   122287.   122288.   122289.   122290.   122291.   122292.   122293.   122294.   122295.
 122296.   122298.   122300.   122304.   122310.   122319.   122331.   122347.   122367.   122390.
 122418.   122449.   122483.   122522.   122567.   122622.   122691.   122777.   122886.   123024.
 123199.   123421.   123691.   124011.   124376.   124777.   125202.   125637.   126067.   126477.
 126854.   127204.   127514.   127788.   128027.   128241.   128426.   128587.   128728.   128850.
 128955.   129045.   129121.   129185.   129239.   129281.   129316.   129342.   129362.   129375.
 129383.   129386.   129385.   129381.   129373.   129362.   129349.   129333.   129316.   129297.
 129276.   129255.   129232.   129208.   129182.   129157.   129130.   129103.   129075.   129046.
 129016.   128986.   128956.   128926.   128897.   128867.   128837.   128808.   128779.   128750.
 128721.   128692.   128664.   128635.   128607.   128579.   128552.   128524.   128497.   128470.

                                         STAGE
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0    1858.0
  1858.1    1858.1    1858.1    1858.1    1858.1    1858.1    1858.1    1858.2    1858.2    1858.2
  1858.3    1858.4    1858.4    1858.5    1858.6    1858.8    1858.9    1859.0    1859.2    1859.3
  1859.4    1859.5    1859.6    1859.7    1859.8    1859.8    1859.9    1859.9    1860.0    1860.0
  1860.0    1860.1    1860.1    1860.1    1860.1    1860.1    1860.1    1860.2    1860.2    1860.2
  1860.2    1860.2    1860.2    1860.2    1860.2    1860.2    1860.2    1860.2    1860.1    1860.1
  1860.1    1860.1    1860.1    1860.1    1860.1    1860.1    1860.1    1860.1    1860.1    1860.1
  1860.1    1860.0    1860.0    1860.0    1860.0    1860.0    1860.0    1860.0    1860.0    1860.0
  1860.0    1860.0    1859.9    1859.9    1859.9    1859.9    1859.9    1859.9    1859.9    1859.9

PEAK OUTFLOW IS       831. AT TIME  56.00 HOURS

                               PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                      CFS      831.      827.       778.       314.         45241.
                      CMS       24.       23.        22.         9.          1281.
                   INCHES                0.37       1.39       1.68           1.68
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*DYN*

                                     STATION    DAM1, PLAN 1, RATIO 3

                                   END-OF-PERIOD HYDROGRAPH ORDINATES

                                              OUTFLOW
         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
         0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
         0.         0.         0.         0.         0.         0.         0.         0.         1.         1.
         1.         1.         1.         1.         1.         2.         2.         2.         3.         3.
         4.        13.       105.       213.       335.       471.       613.       759.       903.      1041.
      1104.      1264.      1414.      1558.      1695.      1823.      1939.      2041.      2131.      2209.
      2276.      2331.      2370.      2413.      2440.      2460.      2473.      2481.      2482.      2480.
      2473.      2462.      2449.      2433.      2415.      2395.      2373.      2350.      2326.      2301.
      2274.      2249.      2223.      2196.      2169.      2142.      2115.      2087.      2060.      2032.
      2005.      1978.      1951.      1925.      1899.      1873.      1848.      1824.      1800.      1777.
      1754.      1732.      1711.      1689.      1667.      1648.      1628.      1609.      1590.      1572.

                                              STORAGE
    122247.    122249.    122250.    122252.    122254.    122255.    122257.    122259.    122260.    122262.
    122264.    122265.    122267.    122269.    122270.    122272.    122274.    122275.    122277.    122279.
    122280.    122282.    122284.    122285.    122287.    122289.    122290.    122292.    122294.    122295.
    122297.    122299.    122300.    122302.    122304.    122305.    122307.    122309.    122310.    122312.
    122314.    122315.    122317.    122319.    122320.    122322.    122323.    122325.    122327.    122328.
    122330.    122332.    122333.    122335.    122337.    122339.    122341.    122343.    122345.    122347.
    122350.    122352.    122358.    122366.    122378.    122395.    122415.    122451.    122490.    122538.
    122592.    122654.    122723.    122801.    122892.    123002.    123135.    123311.    123529.    123804.
    124154.    124598.    125137.    125770.    126463.    127277.    128112.    128965.    129809.    130615.
    131361.    132037.    132641.    133173.    133636.    134037.    134383.    134680.    134934.    135148.
    135327.    135475.    135595.    135690.    135761.    135813.    135847.    135866.    135870.    135863.
    135845.    135819.    135784.    135742.    135695.    135642.    135586.    135525.    135462.    135396.
    135327.    135257.    135185.    135112.    135033.    134963.    134887.    134810.    134733.    134655.
    134576.    134497.    134419.    134341.    134265.    134189.    134114.    134040.    133967.    133895.
    133823.    133753.    133684.    133615.    133547.    133481.    133415.    133349.    133285.    133221.

                                              STAGE
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0
     1858.0     1858.0     1858.0     1858.0     1858.0     1858.0     1858.1     1858.1     1858.1     1858.1
     1858.1     1858.1     1858.1     1858.2     1858.2     1858.2     1858.3     1858.3     1858.4     1858.5
     1858.6     1858.7     1858.9     1859.1     1859.3     1859.5     1859.8     1860.0     1860.3     1860.5
     1860.8     1861.0     1861.2     1861.3     1861.5     1861.6     1861.7     1861.8     1861.9     1861.9
     1862.0     1862.0     1862.1     1862.1     1862.1     1862.1     1862.1     1862.1     1862.1     1862.1
     1862.1     1862.1     1862.1     1862.1     1862.1     1862.1     1862.0     1862.0     1862.0     1862.0
     1862.0     1861.9     1861.9     1861.9     1861.9     1861.9     1861.8     1861.8     1861.8     1861.8
     1861.7     1861.7     1861.7     1861.7     1861.6     1861.6     1861.6     1861.6     1861.6     1861.5
     1861.5     1861.5     1861.5     1861.5     1861.4     1861.4     1861.4     1861.4     1861.3     1861.3

PEAK OUTFLOW IS      2482. AT TIME  54.50 HOURS

                                        PEAK     6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
                              CFS       2482.      2454.      2166.       876.        126182.
                              CMS         70.        69.        61.        25.          3573.
                           INCHES                  1.09       3.86       4.68           4.68
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                                        SUB-AREA RUNOFF COMPUTATION

              INFLOW HYDROGRAPH SUBBASIN NO 2
                              ISTAQ    ICOMP    IECON    ITAPE     JPLT     JPRT    INAME  ISTAGE   IAUTO
                              SUBB2        0        0        0        2        0        1       0       0

                                               HYDROGRAPH DATA
               IHYDG      IUHG     TAREA     SNAP     TRSDA    TRSPC    RATIO    ISNOW    ISAME    LOCAL
                   1         1      3.37       0.     40.07     0.86     0.           0        1        0

                                                 PRECIP DATA
                         SPFE        PMS        R6       R12       R24       R48       R72       R96
                           0.      16.50     95.00    108.60    119.00    125.00        0.        0.

                                                  LOSS DATA
             LROPT    STRKR    DLTKR    RTIOL    ERAIN    STRKS    RTIOK    STRTL    CNSTL    ALSMX    RTIMP
                 0       0.       0.     1.00       0.       0.     1.00     1.00     0.10       0.       0.

                                            UNIT HYDROGRAPH DATA
                                        TP=  2.59      CP=0.63      NTA=  0

                                                RECESSION DATA
                                  STRTQ=   40.00     QRCSN=   40.00     RTIOR= 1.00
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 6.10 AND R= 4.63 INTERVALS

               UNIT HYDROGRAPH 28 END-OF-PERIOD ORDINATES, LAG=   2.58 HOURS, CP= 0.63  VOL= 1.00
            46.       166.       326.       487.       584.       607.       541.       437.       352.       283.
           228.       184.       148.       119.        96.        77.        62.        50.        40.        32.
            26.        21.        17.        14.        11.         9.         7.         6.

                                                 END-OF-PERIOD FLOW
    MO.DA  HR.MN  PERIOD    RAIN   EXCS    LOSS    COMP Q         MO.DA  HR.MN  PERIOD    RAIN   EXCS   LOSS     COMP Q
     1.01   0.30       1    0.00     0.    0.00       40.          1.02  14.00      76    0.80   0.75   0.05      1077.
     1.01   1.00       2    0.00     0.    0.00       40.          1.02  14.30      77    1.01   0.96   0.05      1438.
     1.01   1.30       3    0.00     0.    0.00       40.          1.02  15.00      78    1.01   0.96   0.05      1855.
     1.01   2.00       4    0.00     0.    0.00       40.          1.02  15.30      79    1.22   1.17   0.05      2293.
     1.01   2.30       5    0.00     0.    0.00       40.          1.02  16.00      80    3.87   3.82   0.05      2857.
     1.01   3.00       6    0.00     0.    0.00       40.          1.02  16.30      81    0.94   0.89   0.05      3609.
     1.01   3.30       7    0.00     0.    0.00       40.          1.02  17.00      82    0.94   0.89   0.05      4418.
     1.01   4.00       8    0.00     0.    0.00       40.          1.02  17.30      83    0.74   0.69   0.05      5129.
     1.01   4.30       9    0.00     0.    0.00       40.          1.02  18.00      84    0.74   0.69   0.05      5585.
     1.01   5.00      10    0.00     0.    0.00       40.          1.02  18.30      85    0.08   0.03   0.05      5683.
     1.01   5.30      11    0.00     0.    0.00       40.          1.02  19.00      86    0.08   0.03   0.05      5368.
     1.01   6.00      12    0.00     0.    0.00       40.          1.02  19.30      87    0.08   0.03   0.05      4798.
     1.01   6.30      13    0.01     0.    0.01       40.          1.02  20.00      88    0.08   0.03   0.05      4163.
     1.01   7.00      14    0.01     0.    0.01       40.          1.02  20.30      89    0.08   0.03   0.05      3512.
     1.01   7.30      15    0.01     0.    0.01       40.          1.02  21.00      90    0.08   0.03   0.05      2897.
     1.01   8.00      16    0.01     0.    0.01       40.          1.02  21.30      91    0.08   0.03   0.05      2367.
     1.01   8.30      17    0.01     0.    0.01       40.          1.02  22.00      92    0.08   0.03   0.05      1939.
     1.01   9.00      18    0.01     0.    0.01       40.          1.02  22.30      93    0.08   0.03   0.05      1595.
     1.01   9.30      19    0.01     0.    0.01       40.          1.02  23.00      94    0.08   0.03   0.05      1318.
     1.01  10.00      20    0.01     0.    0.01       40.          1.02  23.30      95    0.08   0.03   0.05      1095.
     1.01  10.30      21    0.01     0.    0.01       40.          1.03   0.        96    0.08   0.03   0.05       916.
     1.01  11.00      22    0.01     0.    0.01       40.          1.03   0.30      97    0.     0.     0.         770.
     1.01  11.30      23    0.01     0.    0.01       40.          1.03   1.00      98    0.     0.     0.         649.
     1.01  12.00      24    0.01     0.    0.01       40.          1.03   1.30      99    0.     0.     0.         547.
     1.01  12.30      25    0.03     0.    0.03       40.          1.03   2.00     100    0.     0.     0.         458.
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1.01  13.30    27  0.04  0.    0.04     40.     1.03   3.00   102   0.     0.     0.      312.
1.01  14.00    28  0.04  0.    0.04     40.     1.03   3.30   103   0.     0.     0.      255.
1.01  14.30    29  0.05  0.    0.05     40.     1.03   4.00   104   0.     0.     0.      210.
1.01  15.00    30  0.05  0.    0.05     40.     1.03   4.30   105   0.     0.     0.      172.
1.01  15.30    31  0.05  0.    0.05     40.     1.03   5.00   106   0.     0.     0.      142.
1.01  16.00    32  0.20  0.    0.20     40.     1.03   5.30   107   0.     0.     0.      117.
1.01  16.30    33  0.05  0.    0.05     40.     1.03   6.00   108   0.     0.     0.       84.
1.01  17.00    34  0.05  0.    0.05     40.     1.03   6.30   109   0.     0.     0.       72.
1.01  17.30    35  0.04  0.    0.04     40.     1.03   7.00   110   0.     0.     0.       61.
1.01  18.00    36  0.04  0.    0.04     40.     1.03   7.30   111   0.     0.     0.       54.
1.01  18.30    37  0.00  0.    0.00     40.     1.03   8.00   112   0.     0.     0.       48.
1.01  19.00    38  0.00  0.    0.00     40.     1.03   8.30   113   0.     0.     0.       46.
1.01  19.30    39  0.00  0.    0.00     40.     1.03   9.00   114   0.     0.     0.       45.
1.01  20.00    40  0.00  0.    0.00     40.     1.03   9.30   115   0.     0.     0.       44.
1.01  20.30    41  0.00  0.    0.00     40.     1.03  10.00   116   0.     0.     0.       43.
1.01  21.00    42  0.00  0.    0.00     40.     1.03  10.30   117   0.     0.     0.       42.
1.01  21.30    43  0.00  0.    0.00     40.     1.03  11.00   118   0.     0.     0.       42.
1.01  22.00    44  0.00  0.    0.00     40.     1.03  11.30   119   0.     0.     0.       41.
1.01  22.30    45  0.00  0.    0.00     40.     1.03  12.00   120   0.     0.     0.       41.
1.01  23.00    46  0.00  0.    0.00     40.     1.03  12.30   121   0.     0.     0.       41.
1.01  23.30    47  0.00  0.    0.00     40.     1.03  13.00   122   0.     0.     0.       40.
1.02   0.      48  0.03  0.    0.00     40.     1.03  13.30   123   0.     0.     0.       40.
1.02   0.30    49  0.05  0.    0.05     40.     1.03  14.00   124   0.     0.     0.       40.
1.02   1.00    50  0.05  0.    0.05     40.     1.03  14.30   125   0.     0.     0.       40.
1.02   1.30    51  0.05  0.00  0.05     40.     1.03  15.00   126   0.     0.     0.       40.
1.02   2.00    52  0.05  0.00  0.05     40.     1.03  15.30   127   0.     0.     0.       40.
1.02   2.30    53  0.05  0.00  0.05     40.     1.03  16.00   128   0.     0.     0.       40.
1.02   3.00    54  0.05  0.00  0.05     41.     1.03  16.30   129   0.     0.     0.       40.
1.02   3.30    55  0.05  0.00  0.05     42.     1.03  17.00   130   0.     0.     0.       40.
1.02   4.00    56  0.05  0.00  0.05     43.     1.03  17.30   131   0.     0.     0.       40.
1.02   4.30    57  0.05  0.00  0.05     44.     1.03  18.00   132   0.     0.     0.       40.
1.02   5.00    58  0.05  0.00  0.05     45.     1.03  18.30   133   0.     0.     0.       40.
1.02   5.30    59  0.05  0.00  0.05     46.     1.03  19.00   134   0.     0.     0.       40.
1.02   6.00    60  0.05  0.00  0.05     46.     1.03  19.30   135   0.     0.     0.       40.
1.02   6.30    61  0.15  0.10  0.05     51.     1.03  20.00   136   0.     0.     0.       40.
1.02   7.00    62  0.15  0.10  0.05     68.     1.03  20.30   137   0.     0.     0.       40.
1.02   7.30    63  0.15  0.10  0.05    102.     1.03  21.00   138   0.     0.     0.       40.
1.02   8.00    64  0.15  0.10  0.05    151.     1.03  21.30   139   0.     0.     0.       40.
1.02   8.30    65  0.15  0.10  0.05    210.     1.03  22.00   140   0.     0.     0.       40.
1.02   9.00    66  0.15  0.10  0.05    271.     1.03  22.30   141   0.     0.     0.       40.
1.02   9.30    67  0.15  0.10  0.05    326.     1.03  23.00   142   0.     0.     0.       40.
1.02  10.00    68  0.15  0.10  0.05    371.     1.03  23.30   143   0.     0.     0.       40.
1.02  10.30    69  0.15  0.10  0.05    406.     1.04   0.     144   0.     0.     0.       40.
1.02  11.00    70  0.15  0.10  0.05    435.     1.04   0.30   145   0.     0.     0.       40.
1.02  11.30    71  0.15  0.10  0.05    458.     1.04   1.00   146   0.     0.     0.       40.
1.02  12.00    72  0.15  0.10  0.05    477.     1.04   1.30   147   0.     0.     0.       40.
1.02  12.30    73  0.67  0.62  0.05    515.     1.04   2.00   148   0.     0.     0.       40.
1.02  13.00    74  0.67  0.62  0.05    613.     1.04   2.30   149   0.     0.     0.       40.
1.02  13.30    75  0.80  0.75  0.05    798.     1.04   3.00   150   0.     0.     0.       40.

                                                             SUM  17.63  14.38   3.25   77466.
                                                                ( 448.)( 365.)(  83.)( 2193.59)

                     PEAK    6-HOUR   24-HOUR   72-HOUR   TOTAL VOLUME
           CFS      5683.     4196.     1527.      536.         77425.
           CMS       161.      119.       43.       15.          2192.
        INCHES                10.08     14.68     15.47          15.51
            MM               256.16    372.81    392.91         393.92
         AC-FT                2080.     3028.     3191.          3199.
  THOUS CU M                  2566.     3735.     3936.          3946.
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*IVII*

                                 HYDROGRAPH AT STA SUBB2 FOR PLAN 1, RTIO 1
        6.         6.         6.         6.         6.         6.         6.         6.         6.         6.
        6.         6.         6.         5.         5.         6.         6.         6.         6.         6.
        6.         6.         6.         6.         5.         5.         6.         6.         6.         6.
        6.         6.         6.         6.         6.         6.         6.         6.         6.         6.
        6.         6.         6.         6.         5.         6.         6.         6.         6.         6.
        6.         6.         6.         6.         5.         6.         7.         7.         7.         7.
        8.        10.        15.        23.        31.        41.        49.        56.        61.        65.
       69.        71.        77.        92.       120.       161.       216.       278.       344.       429.
      541.       667.       769.       834.       852.       805.       720.       624.       527.       434.
      359.       291.       239.       198.       164.       137.       116.        97.        82.        69.
       57.        47.        38.        31.        26.        21.        18.        13.        11.         9.
        8.         7.         7.         7.         7.         6.         6.         6.         6.         6.
        6.         6.         6.         6.         6.         6.         6.         6.         6.         6.
        6.         6.         6.         6.         6.         6.         6.         6.         6.         6.
        6.         6.         6.         6.         6.         6.         6.         6.         6.         6.

                              PEAK     6-HOUR     24-HOUR     72-HOUR     TOTAL VOLUME
                     CFS       852.      629.       229.         80.          11614.
                     CMS        24.       18.         6.          2.            329.
                  INCHES                 1.51       2.20        2.32           2.33
                      MM                38.42      55.92       58.94          59.09
                   AC-FT                  312.       454.        479.           480.
              THOUS CU M                  385.       560.        590.           592.

                                 HYDROGRAPH AT STA SUBB2 FOR PLAN 1, RTIO 2
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        21.        21.        22.        22.        23.        23.
       25.        34.        51.        75.       105.       136.       163.       185.       203.       217.
      229.       238.       258.       307.       399.       538.       719.       927.      1146.      1429.
     1904.      2209.      2565.      2793.      2841.      2684.      2399.      2082.      1756.      1448.
     1183.       970.       798.       659.       549.       458.       385.       325.       273.       225.
      190.       156.       128.       105.        86.        71.        58.        42.        36.        31.
       27.        24.        23.        23.        22.        22.        21.        21.        21.        20.
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        21.        20.        20.        20.        20.        20.
       20.        20.        20.        20.        20.        20.        20.        20.        20.        20.

                              PEAK     6-HOUR     24-HOUR     72-HOUR     TOTAL VOLUME
                     CFS      2841.     2098.       763.        268.          38712.
                     CMS        80.       59.        22.          8.           1096.
                  INCHES                 5.04       7.34        7.73           7.75
                      MM               128.08     186.40      196.45         196.96
                   AC-FT                 1040.      1514.       1596.          1600.
              THOUS CU M                 1283.      1867.       1966.          1973.

                                 HYDROGRAPH AT STA SUBB2 FOR PLAN 1, RTIO 3
       40.        40.        40.        40.        40.        40.        40.        40.        40.        40.
       40.        40.        40.        40.        40.        40.        40.        40.        40.        40.
       40.        40.        40.        40.        40.        40.        40.        40.        40.        40.
       40.        40.        40.        40.        40.        40.        40.        40.        40.        40.
       40.        40.        40.        40.        40.        40.        40.        40.        40.        40.
       40.        40.        40.        41.        42.        43.        44.        45.        46.        46.
       51.        68.       102.       151.       210.       271.       326.       371.       406.       435.
      459.       477.       515.       613.       793.      1077.      1435.      1855.      2293.      2857.
[illegible]       4418.      5172.      5585.      5663.      5351.      4798.      4163.      3512.      2857.
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 [illegible] [illegible] [illegible] [illegible] [illegible]   910.    770.    647.    547.    451.
 [illegible] [illegible] [illegible] [illegible]   172.        152.    117.     84.     72.     61.
    54.      48.      40.      45.      44.      43.      42.      42.      41.      41.
    41.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    47.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    40.      40.      40.      40.      40.      40.      40.      40.      40.      40.

                      PEAK    6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
            CFS       5683.    4196.     1527.      536.         77425.
            CMS        161.     119.       43.       15.          2192.
         INCHES               10.04      14.68      15.47         15.51
             MM              256.16     372.81     392.91        393.92
          AC-FT                2080.     3028.      3191.          3199.
     THOUS CU M                2566.     3735.      3936.          3946.


   **********          **********          **********          **********          **********

                              SUB-AREA RUNOFF COMPUTATION

     INFLOW HYDROGRAPH SUBASIN NO 3
                     ISTAQ     ICOMP    IFCON    ITAPE     JPLT     JPRT    INAME   ISTAGE   IAUTO
                     S1843        0        0        0        2        0        1        0        0

                                          HYDROGRAPH DATA
           IHYDG      IUHG     TAREA     SNAP     TRSDA     TRSPC    RATIO    ISNOW    ISAME    LOCAL
               1         1     15.29       0.     40.07      0.86      0.        0        1        0

                                          PRECIP DATA
                     SPFE       PMS       R6      R12       R24       R48       R72       R96
                       0.     16.50    95.00   108.00    119.00    125.00        0.        0.

                                          LOSS DATA
        LROPT    STRKR    DLTKR    RTIOL    ERAIN    STRKS    RTIOK    STRTL    CNSTL    ALSMX    RTIMP
            0       0.       0.     1.00       0.       0.     1.00     1.00     0.10       0.       0.

                                       UNIT HYDROGRAPH DATA
                                  TP=  6.60      CP=0.63      NTA=  0

                                          RECESSION DATA
                             STRTQ=    40.00     QRCSN=    40.00     RTIOR= 1.00
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC=14.47 AND R=12.22 INTERVALS

          UNIT HYDROGRAPH 73 END-OF-PERIOD ORDINATES, LAG=   6.61 HOURS, CP= 0.63   VOL= 1.00
        20.      75.     152.     243.     343.     450.     561.     671.     770.     849.
       907.     948.     967.     962.     922.     856.     768.     720.     669.     617.
       568.     522.     482.     444.     409.     377.     348.     320.     295.     272.
       251.     231.     213.     196.     181.     166.     153.     141.     130.     120.
       110.     102.      94.      86.      80.      73.      68.      62.      57.      53.
        49.      45.      41.      38.      35.      32.      30.      27.      25.      23.
        21.      20.      18.      17.      15.      14.      13.      12.      11.      10.
         9.       5.       0.

                                                END-OF-PERIOD FLOW
  MO.DA  HR.MN  PERIOD   RAIN   EXCS   LOSS   COMP Q      MO.DA  HR.MN  PERIOD   RAIN   EXCS   LOSS   COMP Q
   1.01   0.30      1    0.00     0.   0.00      40.       1.02  14.00     76    0.80   0.75   0.05    1313.
   1.01   1.00      2    0.00     0.   0.00      40.       1.02  14.30     77    1.01   0.96   0.05    1595.
   1.01   1.30      3    0.00     0.   0.00      40.       1.02  15.00     78    1.01   0.96   0.05    1949.
   1.01   2.00      4    0.00     0.   0.00      40.       1.02  15.30     79    1.22   1.17   0.05    2389.
   1.01   2.30      5    0.00     0.   0.00      40.       1.02  16.00     80    3.87   3.82   0.05    2977.
   1.01   3.00      6    0.00     0.   0.00      40.       1.02  16.30     81    0.94   0.89   0.05    3750.
   1.01   3.30      7    0.00     0.   0.00      40.       1.02  17.00     82    0.94   0.89   0.05    4660.
   1.01   4.00      8    0.00     0.   0.00      40.       1.02  17.30     83
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1.01  [illegible]  10  [illegible]  0.    [illegible]   40.     1.02  18.30   85  0.08  0.03  0.05   7007.
1.01   5.30   11  0.01  0.    0.01   40.     1.02  19.00   86  0.08  0.03  0.05   8854.
1.01   6.00   12  0.01  0.    0.01   40.     1.02  19.30   87  0.08  0.03  0.05   9809.
1.01   6.30   13  0.01  0.    0.01   40.     1.02  20.00   88  0.08  0.03  0.05  10608.
1.01   7.00   14  0.01  0.    0.01   40.     1.02  20.30   89  0.08  0.03  0.05  11212.
1.01   7.30   15  0.01  0.    0.01   40.     1.02  21.00   90  0.08  0.03  0.05  11614.
1.01   8.00   16  0.01  0.    0.01   40.     1.02  21.30   91  0.08  0.03  0.05  11808.
1.01   8.30   17  0.01  0.    0.01   40.     1.02  22.00   92  0.08  0.03  0.05  11795.
1.01   9.00   18  0.01  0.    0.01   40.     1.02  22.30   93  0.08  0.03  0.05  11581.
1.01   9.30   19  0.01  0.    0.01   40.     1.02  23.00   94  0.08  0.03  0.05  11156.
1.01  10.00   20  0.01  0.    0.01   40.     1.02  23.30   95  0.08  0.03  0.05  10575.
1.01  10.30   21  0.01  0.    0.01   40.     1.03   0.     96  0.08  0.03  0.05   9934.
1.01  11.00   22  0.01  0.    0.01   40.     1.03   0.30   97  0.    0.    0.      9275.
1.01  11.30   23  0.01  0.    0.01   40.     1.03   1.00   98  0.    0.    0.      8617.
1.01  12.00   24  0.01  0.    0.01   40.     1.03   1.30   99  0.    0.    0.      7985.
1.01  12.30   25  0.03  0.    0.03   40.     1.03   2.00  100  0.    0.    0.      7396.
1.01  13.00   26  0.03  0.    0.03   40.     1.03   2.30  101  0.    0.    0.      6850.
1.01  13.30   27  0.04  0.    0.04   40.     1.03   3.00  102  0.    0.    0.      6343.
1.01  14.00   28  0.04  0.    0.04   40.     1.03   3.30  103  0.    0.    0.      5872.
1.01  14.30   29  0.05  0.    0.05   40.     1.03   4.00  104  0.    0.    0.      5434.
1.01  15.00   30  0.05  0.    0.05   40.     1.03   4.30  105  0.    0.    0.      5026.
1.01  15.30   31  0.06  0.    0.06   40.     1.03   5.00  106  0.    0.    0.      4647.
1.01  16.00   32  0.20  0.    0.20   40.     1.03   5.30  107  0.    0.    0.      4293.
1.01  16.30   33  0.15  0.    0.15   40.     1.03   6.00  108  0.    0.    0.      3964.
1.01  17.00   34  0.05  0.    0.05   40.     1.03   6.30  109  0.    0.    0.      3659.
1.01  17.30   35  0.04  0.    0.04   40.     1.03   7.00  110  0.    0.    0.      3376.
1.01  18.00   36  0.04  0.    0.04   40.     1.03   7.30  111  0.    0.    0.      3114.
1.01  18.30   37  0.00  0.    0.00   40.     1.03   8.00  112  0.    0.    0.      2872.
1.01  19.00   38  0.00  0.    0.00   40.     1.03   8.30  113  0.    0.    0.      2649.
1.01  19.30   39  0.00  0.    0.00   40.     1.03   9.00  114  0.    0.    0.      2444.
1.01  20.00   40  0.00  0.    0.00   40.     1.03   9.30  115  0.    0.    0.      2255.
1.01  20.30   41  0.00  0.    0.00   40.     1.03  10.00  116  0.    0.    0.      2081.
1.01  21.00   42  0.00  0.    0.00   40.     1.03  10.30  117  0.    0.    0.      1921.
1.01  21.30   43  0.00  0.    0.00   40.     1.03  11.00  118  0.    0.    0.      1773.
1.01  22.00   44  0.00  0.    0.00   40.     1.03  11.30  119  0.    0.    0.      1637.
1.01  22.30   45  0.00  0.    0.00   40.     1.03  12.00  120  0.    0.    0.      1511.
1.01  23.00   46  0.00  0.    0.00   40.     1.03  12.30  121  0.    0.    0.      1395.
1.01  23.30   47  0.00  0.    0.00   40.     1.03  13.00  122  0.    0.    0.      1289.
1.02   0.     48  0.00  0.    0.00   40.     1.03  13.30  123  0.    0.    0.      1191.
1.02   0.30   49  0.05  0.    0.05   40.     1.03  14.00  124  0.    0.    0.      1100.
1.02   1.00   50  0.05  0.    0.05   40.     1.03  14.30  125  0.    0.    0.      1017.
1.02   1.30   51  0.05  0.00  0.05   40.     1.03  15.00  126  0.    0.    0.       940.
1.02   2.00   52  0.05  0.00  0.05   40.     1.03  15.30  127  0.    0.    0.       869.
1.02   2.30   53  0.05  0.00  0.05   40.     1.03  16.00  128  0.    0.    0.       804.
1.02   3.00   54  0.05  0.00  0.05   40.     1.03  16.30  129  0.    0.    0.       744.
1.02   3.30   55  0.05  0.00  0.05   41.     1.03  17.00  130  0.    0.    0.       689.
1.02   4.00   56  0.05  0.00  0.05   41.     1.03  17.30  131  0.    0.    0.       638.
1.02   4.30   57  0.05  0.00  0.05   42.     1.03  18.00  132  0.    0.    0.       591.
1.02   5.00   58  0.05  0.00  0.05   43.     1.03  18.30  133  0.    0.    0.       547.
1.02   5.30   59  0.05  0.00  0.05   44.     1.03  19.00  134  0.    0.    0.       507.
1.02   6.00   60  0.05  0.00  0.05   46.     1.03  19.30  135  0.    0.    0.       469.
1.02   6.30   61  0.15  0.10  0.05   49.     1.03  20.00  136  0.    0.    0.       435.
1.02   7.00   62  0.15  0.10  0.05   58.     1.03  20.30  137  0.    0.    0.       403.
1.02   7.30   63  0.15  0.10  0.05   75.     1.03  21.00  138  0.    0.    0.       374.
1.02   8.00   64  0.15  0.10  0.05  102.     1.03  21.30  139  0.    0.    0.       347.
1.02   8.30   65  0.15  0.10  0.05  138.     1.03  22.00  140  0.    0.    0.       322.
1.02   9.00   66  0.15  0.10  0.05  185.     1.03  22.30  141  0.    0.    0.       299.
1.02   9.30   67  0.15  0.10  0.05  243.     1.03  23.00  142  0.    0.    0.       278.
1.02  10.00   68  0.15  0.10  0.05  313.     1.03  23.30  143  0.    0.    0.       258.
1.02  10.30   69  0.15  0.10  0.05  392.     1.04   0.    144  0.    0.    0.       240.
1.02  11.00   70  0.15  0.10  0.05  479.     1.04   0.30  145  0.    0.    0.       224.
1.02  11.30   71  0.15  0.10  0.05  572.     1.04   1.00  146  0.    0.    0.       205.
1.02  12.00   72  0.15  0.10  0.05  668.     1.04   1.30  147  0.    0.    0.       187.
1.02  12.30   73  0.67  0.62  0.05  777.     1.04   2.00  148  0.    0.    0.       170.
1.02  13.00   74  0.67  0.62  0.05  914.     1.04   2.30  149  0.    0.    0.       154.
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                                                                              SUM   17.63   14.38    3.25   288065.
                                                                                  ( 448.)( 365.)(  83.)( 8157.09)

                 PEAK      6-HOUR     24-HOUR     72-HOUR     TOTAL VOLUME
       CFS      11803.     10675.      5554.       1998.         287980.
       CMS        334.       302.       157.         57.           8155.
    INCHES                   6.49      13.52       14.59           14.60
        MM                 164.97     343.31      370.59          370.85
     AC-FT                  5294.     11016.      11892.          11900.
THOUS CU M                  6529.     13588.      14668.          14678.
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                    HYDROGRAPH AT STA SUBB3 FOR PLAN 1, RTIO 1
     6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
     6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
     6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
     6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
     6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
     6.       6.       6.       6.       6.       6.       6.       6.       7.       7.
     7.       9.      11.      15.      21.      28.      36.      47.      59.      72.
    84.     100.     117.     137.     163.     197.     239.     292.     358.     447.
   562.     639.     853.    1009.    1171.    1320.    1471.    1591.    1682.    1742.
  1771.    1759.    1737.    1673.    1586.    1490.    1391.    1293.    1198.    1109.
  1029.     952.     861.     815.     754.     697.     644.     595.     549.     506.
   467.     431.     397.     367.     339.     312.     288.     266.     245.     227.
   209.     193.     179.     165.     153.     141.     130.     121.     112.     103.
    95.      89.      82.      76.      70.      65.      60.      56.      52.      48.
    45.      42.      39.      36.      34.      31.      28.      26.      23.      21.

                    PEAK    6-HOUR    24-HOUR   72-HOUR   TOTAL VOLUME
            CFS    1771.     1601.       833.      306.         43157.
            CMS      50.       45.        24.        9.          1223.
         INCHES               0.97       2.03      2.19           2.19
             MM              24.74      51.50     55.59          55.63
          AC-FT               794.      1652.     1784.          1785.
     THOUS CU M               979.      2038.     2200.          2202.

                    HYDROGRAPH AT STA SUBB3 FOR PLAN 1, RTIO 2
    20.      20.      20.      20.      20.      20.      20.      20.      20.      20.
    20.      20.      20.      20.      20.      20.      20.      20.      20.      20.
    20.      20.      20.      20.      20.      20.      20.      20.      20.      20.
    20.      20.      20.      20.      20.      20.      20.      20.      20.      20.
    20.      20.      20.      20.      20.      20.      20.      20.      20.      20.
    20.      20.      20.      20.      20.      21.      21.      22.      22.      23.
    25.      29.      38.      51.      69.      93.     122.     156.     196.     239.
   284.     334.     389.     457.     545.     656.     797.     975.    1194.    1488.
  1875.    2330.    2832.    3363.    3903.    4427.    4905.    5304.    5606.    5807.
  5904.    5898.    5790.    5578.    5284.    4967.    4637.    4308.    3993.    3698.
  3425.    3172.    2936.    2717.    2513.    2323.    2147.    1982.    1830.    1688.
  1557.    1436.    1325.    1222.    1123.    1041.     960.     866.     818.     756.
   699.     644.     595.     550.     508.     470.     435.     402.     372.     344.
   319.     295.     274.     253.     235.     217.     201.     187.     173.     161.
   149.     139.     129.     120.     112.     102.      94.      85.      77.      69.

                    PEAK    6-HOUR    24-HOUR   72-HOUR   TOTAL VOLUME
            CFS    5904.     5338.      2777.      999.        143950.
            CMS     167.      151.        79.       28.          4077.
         INCHES               3.25       6.76      7.30           7.30
             MM              82.48     171.66    185.30         185.43
          AC-FT              2647.      5508.     5946.          5950.
     THOUS CU M              3265.      6794.     7334.          7339.

                    HYDROGRAPH AT STA SUBB3 FOR PLAN 1, RTIO 3
    40.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    40.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    40.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    40.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    40.      40.      40.      40.      40.      40.      40.      40.      40.      40.
    40.      40.      40.      40.      41.      41.      42.      43.      44.      46.
    47.      58.      75.     102.     131.     135.     243.     313.     392.     479.
[illegible] [illegible] [illegible] [illegible] [illegible] 1313. 1595. 1949. 2388. 2577.
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  [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
  [illegible] [illegible] [illegible] [illegible] [illegible]   4667.      4293.      3964.      3659.        33.
   3114.      2772.      2649.      2144.      2255.      2051.      1921.      1773.      1637.      1511.
   1395.      1269.      1191.      1155.      1017.       940.       865.       804.       744.       689.
    637.       591.       547.       507.       467.       435.       402.       374.       347.       322.
    295.       278.       258.       240.       224.       205.       187.       170.       154.       138.

                    PEAK    6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
          CFS      11003.    10675.     5554.      1998.        207980.
          CMS        374.      302.      157.        57.          8155.
       INCHES                  6.49     13.52      14.59          14.60
           MM                164.97    343.31     370.59         370.85
        AC-FT                 5294.    11016.     11692.         11900.
    THOUS CU M                6529.    13538.     14668.         14678.


 **********          **********          **********          **********          **********

                             COMBINE HYDROGRAPHS

     COMBINED INFLOW HYDROGRAPH
                    ISTAQ    ICOMP    IECON    ITAPE    JPLT    JPRT    INAME   ISTAGE   IAUTO
                    COMAN        3        0        0       2       0        1        0       0

                    SUM OF 3 HYDROGRAPHS AT   COMAN   PLAN 1   RTIO 1
     12.        12.        12.        12.        12.        12.        12.        12.        12.        12.
     12.        12.        12.        12.        12.        12.        12.        12.        12.        12.
     12.        12.        12.        12.        12.        12.        12.        12.        12.        12.
     12.        12.        12.        12.        12.        12.        12.        12.        12.        12.
     12.        12.        12.        12.        12.        12.        12.        12.        12.        12.
     12.        12.        12.        12.        12.        13.        13.        13.        14.        14.
     15.        19.        27.        31.        52.        69.        85.       103.       120.       137.
    155.       172.       194.       229.       283.       359.       455.       571.       703.       876.
   1104.      1762.      1620.      1343.      2029.      2135.      2193.      2219.      2211.      2179.
   2127.      2063.      1980.      1875.      1754.      1632.      1511.      1354.      1284.      1183.
   1067.      1003.       924.       851.       785.       723.       666.       612.       565.       522.
    444.       449.       416.       337.       360.       335.       311.       290.       270.       252.
    235.       219.       205.       192.       183.       168.       158.       148.       139.       131.
    123.       116.       109.       103.        98.        92.        87.        83.        79.        75.
     71.        68.        65.        62.        60.        57.        54.        51.        49.        46.

                    PEAK    6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
          CFS       2218.     2045.     1056.       386.         55677.
          CMS         63.       58.       30.        11.          1577.
       INCHES                  0.48      0.98       1.08           1.06
           MM                 12.07     24.93      27.34          27.37
        AC-FT                 1014.     2095.      2290.          2301.
    THOUS CU M                1251.     2584.      2835.          2838.
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                                   SUM OF 3 HYDROGRAPHS AT   COMBN  PLAN 1  RTIO 2
     40.       40.       40.       40.       41.       40.       40.       40.       40.       40.
     40.       40.       40.       40.       41.       40.       40.       40.       40.       40.
     40.       40.       40.       40.       41.       40.       40.       40.       40.       40.
     40.       40.       40.       40.       41.       40.       40.       40.       40.       40.
     40.       40.       40.       40.       41.       40.       40.       40.       40.       40.
     40.       40.       40.       41.       41.       42.       43.       44.       45.       46.
     52.       47.       69.      124.      174.      228.      285.      342.      399.      457.
    513.      573.      647.      746.      944.     1195.     1517.     1903.     2342.     2919.
   3681.     4541.     5394.     6160.     6742.     7154.     7420.     7576.     7626.     7589.
   7406.     7328.     7099.     6778.     6434.     6080.     5689.     5321.     4985.     4666.
   4377.     4106.     3849.     3619.     3405.     3207.     3024.     2841.     2692.     2547.
   2414.     2291.     2179.     2075.     1979.     1889.     1806.     1729.     1658.     1592.
   1530.     1473.     1420.     1370.     1325.     1282.     1242.     1204.     1170.     1137.
   1107.     1079.     1051.     1026.     1002.      980.      955.      939.      920.      903.
    887.      871.      857.      843.      830.      815.      802.      789.      776.      763.

                      PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
              CFS    7626.     7114.      4030.      1582.        227943.
              CMS     216.      201.       114.        45.          6455.
           INCHES               1.65       3.74       4.41          4.41
               MM              41.97      95.09     111.97        112.06
            AC-FT              3527.      7993.      9411.          9419.
      THOUS CU M               4351.      9859.     11608.         11618.
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#81/114

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                                  SUM OF 9 HYDROGRAPHS AT   COMBN  PLAN 1  RTIO 3
       80.         80.         80.         80.         80.         80.         80.         80.         80.         80.
       80.         80.         80.         80.         80.         80.         80.         80.         80.         80.
       80.         80.         80.         80.         80.         80.         80.         80.         80.         80.
       80.         80.         80.         80.         80.         80.         80.         80.         80.         80.
       80.         80.         80.         80.         80.         80.         80.         80.         80.         80.
       80.         80.         81.         82.         83.         84.         86.         88.         90.         92.
      101.        127.        177.        252.        341.        457.        570.        683.        798.        914.
     1030.       1144.       1294.       1526.       1883.       2391.       3035.       3805.       4684.       5837.
     7363.       9691.      10697.      12525.      13525.      14682.      15220.      15530.      15627.      15551.
    15343.      15015.      14593.      14132.      13367.      12674.      11984.      11308.      10664.      10064.
     9505.       8986.       8504.       8057.       7637.       7249.       6883.       6527.       6213.       5917.
     5640.       5382.       5145.       4922.       4714.       4519.       4336.       4165.       4004.       3853.
     3712.       3579.       3454.       3335.       3225.       3122.       3024.       2931.       2844.       2761.
     2683.       2608.       2538.       2471.       2408.       2348.       2291.       2238.       2187.       2139.
     2093.       2050.       2009.       1970.       1932.       1895.       1856.       1819.       1784.       1750.

                               PEAK     6-HOUR     24-HOUR     72-HOUR    TOTAL VOLUME
                   CFS        15627.     14616.      8605.       3411.        491567.
                   CMS          443.       414.       244.         97.         13920.
                INCHES                     3.39       8.00        9.51          9.51
                    MM                    86.23     203.08      241.48        241.60
                 AC-FT                     7248.     17069.      20297.         20314.
            THOUS CU M                     8940.     21054.      25036.         25056.
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*D/N*


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                                              HYDROGRAPH ROUTING

                    ROUTE COMBINED HYDROGRAPH THROUGH HILL POND DAM
                                  ISTAQ    ICOMP    IECON    ITAPE     JPLT     JPRT    INAME   ISTAGE    IAUTO
                                  HILLP        1        0        0        0        0        1        0        0
                                                           ROUTING DATA
                         QLOSS     CLOSS      AVG     IRES    ISAME     IOPT     IPMP              LSTR
                            0.        0.       0.        1        1        0        0                 0

                                  NSTPS    NSTDL      LAG    AMSKK        X      TSK    STORA   ISPRAT
                                      1        0        0       0.       0.       0.   -1724.       -1

STAGE     1724.00     1725.50     1727.00     1728.00     1729.00     1729.44     1730.00

 FLOW          0.      276.10      914.00     1502.00     2192.00     2522.00     3117.00

  CAPACITY=       88.       137.       216.       266.

  ELEVATION=     1724.      1726.      1728.      1729.

                             CREL    SPWID     COQW     EXPW    ELEVL     COOL    CAREA     EXPL
                           1724.0       0.       0.       0.       0.       0.       0.       0.

                                                       DAM DATA
                                                 TOPEL     COQD     EXPD   DAMWID
                                                1729.4      3.0      1.5     230.

                                         STATION  HILLP, PLAN 1, RATIO 1

                                        END-OF-PERIOD HYDROGRAPH ORDINATES

                                                    OUTFLOW
          3.        4.        6.        7.        8.        9.       10.       10.       11.       11.
         11.       11.       11.       12.       12.       12.       12.       12.       12.       12.
         12.       12.       12.       12.       12.       12.       12.       12.       12.       12.
         12.       12.       12.       12.       12.       12.       12.       12.       12.       12.
         12.       12.       12.       12.       12.       12.       12.       12.       12.       12.
         12.       12.       12.       12.       12.       12.       12.       12.       13.       13.
         13.       14.       16.       19.       25.       32.       41.       52.       65.       78.
         92.      107.      123.      141.      165.      198.      241.      322.      459.      603.
        771.      968.     1208.     1528.     1765.     1947.     2074.     2150.     2168.     2192.
       2171.     2127.     2066.     1955.     1864.     1774.     1656.     1537.     1426.     1319.
       1217.     1122.     1034.      953.      886.      823.      770.      713.      659.      609.
        563.      521.      482.      447.      415.      385.      358.      333.      310.      289.
        273.      263.      253.      241.      230.      218.      207.      196.      185.      174.
        165.      155.      146.      138.      130.      123.      116.      110.      104.       98.
         93.       88.       84.       79.       76.       72.       69.       65.       62.       59.

                                                    STORAGE
         88.       88.       89.       89.       89.       90.       90.       90.       90.       90.
         90.       90.       90.       90.       90.       90.       90.       90.       90.       90.
         90.       90.       90.       90.       90.       90.       90.       90.       90.       90.
         90.       90.       90.       90.       90.       90.       90.       90.       90.       90.
         90.       90.       90.       90.       90.       90.       90.       90.       90.       90.
         90.       90.       90.       90.       90.       90.       90.       90.       90.       90.
         90.       90.       91.       91.       92.       94.       95.       97.       99.      102.
        104.      107.      110.      113.      117.      123.      131.      140.      151.      161.
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      155.      154.      152.      150.      147.      145.      143.      141.      140.      138.
      136.      135.      133.      131.      129.      127.      125.      123.      121.      119.
      117.      116.      114.      112.      111.      110.      109.      107.      106.      105.
      104.      104.      103.      102.      101.      101.      100.      100.       99.       98.

                                             STAGE
    1724.0    1724.0    1724.0    1724.0    1724.0    1724.0    1724.1    1724.1    1724.1    1724.1
    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1
    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1
    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1
    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1
    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1    1724.1
    1724.1    1724.1    1724.1    1724.1    1724.1    1724.2    1724.2    1724.3    1724.4    1724.4
    1724.5    1724.6    1724.7    1724.8    1724.9    1725.1    1725.3    1725.6    1725.9    1726.3
    1726.7    1727.1    1727.6    1728.0    1728.4    1728.6    1728.8    1728.9    1729.0    1729.0
    1729.0    1728.9    1728.8    1728.7    1728.6    1728.4    1728.2    1728.0    1727.9    1727.7
    1727.5    1727.4    1727.2    1727.1    1726.9    1726.8    1726.7    1726.5    1726.4    1726.3
    1726.2    1726.1    1726.0    1725.9    1725.8    1725.8    1725.7    1725.6    1725.6    1725.5
    1725.5    1725.4    1725.4    1725.3    1725.2    1725.2    1725.1    1725.1    1725.0    1724.9
    1724.9    1724.8    1724.8    1724.7    1724.7    1724.7    1724.6    1724.6    1724.6    1724.5
    1724.5    1724.5    1724.5    1724.4    1724.4    1724.4    1724.4    1724.4    1724.3    1724.3

PEAK OUTFLOW IS     2192. AT TIME  45.00 HOURS

                               PEAK    6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
                      CFS     2192.     2023.      1049.       385.         55433.
                      CMS       62.       57.        30.        11.          1570.
                   INCHES                0.47       0.97       1.07           1.07
                       MM               11.93      24.76      27.24          27.20
                    AC-FT               1003.      2081.      2290.          2291.
                THOUS CU M              1237.      2567.      2824.          2826.


                                  STATION  MILLP, PLAN 1, RATIO 2

                               END-OF-PERIOD HYDROGRAPH ORDINATES

                                             OUTFLOW
        8.       15.       20.       24.       28.       30.       32.       34.       35.       36.
       37.       38.       38.       39.       39.       39.       39.       39.       40.       40.
       40.       40.       40.       40.       40.       40.       40.       40.       40.       40.
       40.       40.       40.       40.       40.       40.       40.       40.       40.       40.
       40.       40.       40.       40.       40.       40.       40.       40.       40.       40.
       40.       40.       40.       40.       40.       41.       41.       42.       42.       43.
       44.       47.       53.       64.       82.      107.      138.      175.      216.      260.
      341.      429.      508.      594.      707.      865.     1124.     1450.     1839.     2306.
     3143.     4177.     5074.     5597.     6561.     7033.     7342.     7532.     7616.     7605.
     7523.     7380.     7176.     6899.     6556.     6197.     5817.     5455.     5108.     4784.
     4484.     4207.     3951.     3716.     3493.     3297.     3111.     2935.     2774.     2630.
     2503.     2410.     2302.     2194.     2096.     2001.     1912.     1828.     1750.     1677.
     1609.     1547.     1489.     1437.     1387.     1341.     1297.     1256.     1218.     1182.
     1149.     1117.     1088.     1061.     1035.     1010.      987.      966.      946.      927.
      912.      897.      882.      868.      854.      841.      827.      813.      800.      787.

                                             STORAGE
       89.       91.       92.       92.       93.       93.       94.       94.       94.       94.
       95.       95.       95.       95.       95.       95.       95.       95.       95.       95.
       95.       95.       95.       95.       95.       95.       95.       95.       95.       95.
       95.       95.       95.       95.       95.       95.       95.       95.       95.       95.
       95.       95.       95.       95.       95.       95.       95.       95.       95.       95.
       95.       95.       95.       95.       95.       95.       95.       95.       95.       96.
       96.       96.       97.       99.      103.      107.      113.      119.      126.      134.
      142.      148.      154.      161.      169.      181.      196.      213.      233.      256.
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 [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]     279.  [illegible]     272.      269.
     254.      251.      250.  [illegible]  [illegible]     241.      237.      232.      228.      225.
     221.      219.      215.      213.      210.      207.      205.      203.      201.      199.
     197.      195.      194.      192.      191.      190.      189.      187.      186.      185.
     184.      183.      182.      181.      180.      179.      178.      177.      176.      175.

                                           STAGE
   1724.0    1724.1    1724.1    1724.1    1724.1    1724.2    1724.2    1724.2    1724.2    1724.2
   1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2
   1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2
   1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2
   1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2
   1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2    1724.2
   1724.2    1724.3    1724.3    1724.3    1724.4    1724.6    1724.8    1724.9    1725.2    1725.4
   1725.7    1725.9    1726.0    1726.2    1726.5    1726.9    1727.4    1727.9    1728.5    1729.2
   1729.8    1730.4  [illegible] 1731.1    1731.4    1731.6    1731.7    1731.8    1731.8    1731.8
   1731.8    1731.7    1731.6    1731.5    1731.4    1731.3    1731.1    1730.9    1730.8    1730.7
   1730.5    1730.4    1730.3    1730.1    1730.0    1729.9    1729.8    1729.7    1729.6    1729.5
   1729.4    1729.3    1729.1    1729.0    1728.9    1728.7    1728.6    1728.5    1728.4    1728.3
   1728.2    1728.1    1728.0    1727.9    1727.8    1727.7    1727.7    1727.6    1727.5    1727.5
   1727.4    1727.3    1727.3    1727.2    1727.2    1727.2    1727.1    1727.1    1727.1    1727.0
   1727.0    1727.0    1726.9    1726.9    1726.9    1726.8    1726.8    1726.6    1726.7    1726.7

PEAK OUTFLOW IS     7616. AT TIME  44.50 HOURS

                                  PEAK    6-HOUR    24-HOUR    72-HOUR   TOTAL VOLUME
                        CFS      7616.     7195.      4024.      1566.        225379.
                        CMS       216.      201.       114.        44.          6396.
                     INCHES                 1.65       3.74       4.37          4.37
                         MM                41.92      94.96     111.00        111.05
                      AC-FT                3523.      7931.      9329.          9334.
                 THOUS CU M                4346.      9845.     11508.         11513.

                              STATION  MILLP, PLAN 1, RATIO 3

                             END-OF-PERIOD HYDROGRAPH ORDINATES

                                          OUTFLOW
      17.       30.       40.       49.       55.       60.       64.       68.       70.       72.
      74.       75.       76.       77.       78.       78.       79.       79.       79.       79.
      79.       80.       80.       80.       80.       80.       80.       80.       80.       80.
      80.       80.       80.       80.       80.       80.       80.       80.       80.       80.
      80.       80.       80.       80.       80.       80.       80.       80.       80.       80.
      80.       80.       80.       80.       81.       81.       82.       83.       85.       86.
      83.       93.      100.      124.      164.      214.      277.      422.      565.      692.
     314.      938.     1095.     1270.     1514.     1878.     2374.     3311.     4321.     5293.
    6626.     6546.    10374.    12097.    13507.    14499.    15106.    15465.    15617.    15580.
   15403.    15107.    14705.    14183.    13545.    12856.    12168.    11491.    10840.    10231.
    9664.     9136.     8646.     8191.     7767.     7371.     7000.     6645.     6317.     6017.
    5735.     5473.     5230.     5004.     4792.     4593.     4407.     4233.     4069.     3916.
    3772.     3636.     3509.     3390.     3277.     3172.     3072.     2978.     2890.     2866.
    2724.     2651.     2560.     2516.     2467.     2412.     2355.     2299.     2246.     2195.
    2149.     2104.     2061.     2019.     1979.     1941.     1902.     1865.     1828.     1793.

                                          STORAGE
      91.       92.       95.       97.       98.       99.       99.      100.      100.      101.
     101.      101.      102.      102.      102.      102.      102.      102.      102.      102.
     102.      102.      102.      102.      102.      102.      102.      102.      102.      102.
     102.      102.      102.      102.      102.      102.      102.      102.      102.      102.
     102.      102.      102.      102.      102.      102.      102.      102.      102.      102.
     102.      102.      102.      102.      102.      102.      102.      102.      102.      102.
     104.      105.      107.      111.      117.      126.      137.      144.      158.      166.
     177.      154.      194.      234.      217.      235.      259.      283.      301.      317.
   [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]  [illegible]
   32[illegible]  [illegible]  31[illegible]  31[illegible]  [illegible]  3[illegible]5.  [illegible]62.  29[illegible]  297.  294.
   291.   289.   267.   2[illegible]5.   282.   250.   278.   270.   275.   273.
   271.   26[illegible]   267.   2[illegible]   263.   251.   258.   256.   253.   251.
   242.   24[illegible]   24[illegible]   2[illegible]   243.   238.   236.   23[illegible]   232.   231.

                                                  STAGE
 1724.1  1724.2  1724.2  1724.3  1724.3  1724.3  1724.4  1724.4  1724.4  1724.4
 1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4
 1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4
 1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4
 1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4
 1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.4  1724.5  1724.5  1724.5
 1724.5  1724.5  1724.6  1724.7  1724.9  1725.2  1725.5  1725.9  1726.2  1726.5
 1726.8  1727.0  1727.3  1727.6  1728.0  1728.5  1729.2  1729.9  1730.4  1730.9
 1731.5  1732.1  1732.8  1733.4  1733.8  1734.1  1734.3  1734.4  1734.4  1734.4
 1734.4  1734.3  1734.2  1734.0  1733.6  1733.5  1733.4  1733.2  1732.9  1732.7
 1732.5  1732.4  1732.2  1732.0  1731.9  1731.7  1731.6  1731.4  1731.3  1731.2
 1731.1  1731.0  1730.9  1730.8  1730.7  1730.6  1730.5  1730.4  1730.3  1730.2
 1730.2  1730.1  1730.0  1730.0  1729.9  1729.9  1729.8  1729.7  1729.7  1729.6
 1729.6  1729.5  1729.5  1729.4  1729.4  1729.3  1729.2  1729.1  1729.1  1729.0
 1728.9  1728.9  1728.9  1728.7  1728.7  1728.6  1728.6  1728.5  1728.5  1728.4

PEAK OUTFLOW IS    15617. AT TIME  44.50 HOURS

                          PEAK     6-HOUR    24-HOUR    72-HOUR    TOTAL VOLUME
               CFS       15617.    14579.     3602.      3359.       478220.
               CMS         442.      413.      244.        96.        13825.
            INCHES                   3.39      7.99       9.45          9.45
                MM                  86.13    202.99     239.92        240.03
             AC-FT                  7239.    17062.     20166.        20174.
         THOUS CU M                 8930.    21045.     24874.        24885.


         **********          **********          **********          **********          **********
```

```
PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
                 FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
                       AREA IN SQUARE MILES (SQUARE KILOMETERS)

                                                            RATIOS APPLIED TO FLOWS
OPERATION        STATION        AREA      PLAN  RATIO 1   RATIO 2  RATIO 3
                                                   0.15      0.50     1.00

HYDROGRAPH AT    SUBA1       20.89          1     3220.    10735.   21469.
                         (0.13E 21)          (    91.19)(  303.97)( 607.94)(

ROUTED TO         DAM1       20.89          1       22.      831.    2482.
                         (0.38E 19)          (     0.61)(   23.53)(  70.29)(

HYDROGRAPH AT    SUBA2        3.87          1      852.     2841.    5653.
                         (0.13E 21)          (    24.14)(   80.45)( 160.01)(

HYDROGRAPH AT    SUBA3       15.29          1     1771.     5904.   11808.
                         (0.13E 21)          (    50.15)(  167.13)( 334.37)(

 3 COMBINED      COMB1       40.05          1     2218.     7626.   15627.
                         (0.43E 20)          (    62.81)(  215.94)( 442.51)(

ROUTED TO        HILLP       40.05          1     2192.     7616.   15617.
                         (0.10E 21)          (    62.07)(  215.67)( 442.22)(
                              SUMMARY OF DAM SAFETY ANALYSIS

PLAN  1 ...............
                         INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
          ELEVATION         1858.00           1858.00           1861.00
          STORAGE          122246.           122246.           132132.
          OUTFLOW              0.                0.              1300.

  RATIO    MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION      TIME OF      TIME OF
   OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP    MAX OUTFLOW    FAILURE
   PMF    W.S.ELEV    OVER DAM     AC-FT       CFS        HOURS        HOURS        HOURS
   0.15    1858.73       0.       124649.       22.         0.         65.00          0.
   0.50    1860.17       0.       129365.      831.         0.         56.00          0.
   1.00    1862.13      1.13      133870.     2452.       29.00        54.50          0.
```

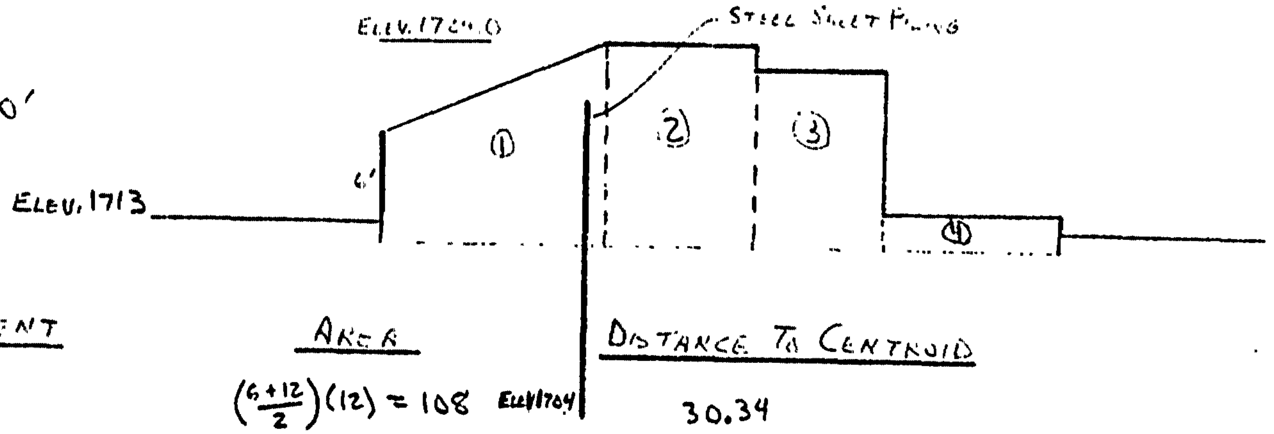
```
                              SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 ...............
                                    INITIAL VALUE      SPILLWAY CREST     TOP OF DAM
                ELEVATION              1724.00            1724.00           1729.40
                STORAGE                   88.                88.              265.
                OUTFLOW                    0.                 0.             2492.

     RATIO      MAXIMUM       MAXIMUM     MAXIMUM     MAXIMUM     DURATION      TIME OF     TIME OF
       OF      RESERVOIR       DEPTH      STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW   FAILURE
      PMF       W.S.ELEV     OVER DAM      AC-FT        CFS         HOURS        HOURS       HOURS
      .15       1729.00         0.          251.        2192.         0.         45.00         0.
      0.50      1731.81        2.41         343.        7616.       15.50        44.50         0.
      1.00      1734.43        5.03         439.       15617.       28.50        44.50         0.
```

APPENDIX D

STABILITY COMPUTATIONS

SPILLWAY SECTION

SCALE 1 = 10′


ELEV. 1724.0
STEEL SHEET PILING
ELEV. 1713
6′
①
②
③
④
ELEV 1704

SEGMENT	AREA	DISTANCE TO CENTROID
1	$\left(\frac{6+12}{2}\right)(12) = 108$	30.34
2	$(12)(8) = 96$	21
3	$(9.5)(8) = 76$	13
4	$(2)(9) = 18$	4.5

INPUT TO STABILITY ANALYSIS PROGRAM

INPUT ENTRY	PROGRAM No.
Unit Weight of Dam (K/ft^3)	0
Area of Segment No. 1 (ft^2)	1
Distance from Center of Gravity of Segment No. 1 to Downstream Toe (ft)	2
Area of Segment No. 2 (ft^2)	3
Distance from Center of Gravity of Segment No. 2 to Downstream Toe (ft)	4
Area of Segment No. 3 (ft^2)	5
Distance from Center of Gravity of Segment No. 3 to Downstream Tow (ft)	6
Base Width of Dam (Total) (ft)	7
Height of Dam (ft)	8
Ice Loading (K/L ft.)	9
Coefficient of Sliding	10
Unit Weight of Soil (K/ft^3)	11
Active Soil Coefficient - Ka	12
Passive Soil Coefficient - Kp	13
Height of Water over Top of Dam or Spillway (ft)	14
Height of Soil for Active Pressure (ft)	15
Height of Soil for Passive Pressure (ft)	16
Height of Water in Tailrace Channel (ft)	17
Weight of Water (K/ft^3)	18
Area of Segment No. 4 (ft^2)	19
Distance from Center of Gravity of Segment No. 4 to Downstream Toe (ft)	20
Height of Ice Load or Active Water (ft)	46

NORMAL CONDITIONS

```
 0.055      RCL
              1
  102.
  102.      RCL
              2
  30.3
  30.3      RCL
              3
   96.
   96.      RCL
              4
   21.
   21.      RCL
              5
   76.
   76.      RCL
              6
   13.
   13.      RCL
              7
    0.
    0.      RCL
              8
   12.
   12.      RCL
              9
    0.
    0.      RCL
             10
  0.45
  0.45      RCL
             11
 0.055
 0.055      RCL
             12
   0.3
   0.3      RCL
             13
    3.
    3.      RCL
             14
    0.
    0.      RCL
             15
    4.
    4.      RCL
             16
    1.
    1.      RCL
             17
    2.
    2.      RCL
             18
0.0624
0.0624      RCL
             19
   18.
   18.      RCL
             20
   4.5
   4.5      RCL
             46
  12.5

17.26817951

19.9310523
```

ICE LOAD – [illegible]

```
 0.055      RCL
              1
  102.
  102.      RCL
              2
  30.3
  30.3      RCL
              3
   96.
   96.      RCL
              4
   21.
   21.      RCL
              5
   76.
   76.      RCL
              6
   13.
   13.      RCL
              7
    0.
    0.      RCL
              8
   12.
   12.      RCL
              9
   10.
   10.      RCL
             10
  0.45
  0.45      RCL
             11
 0.055
 0.055      RCL
             12
   0.3
   0.3      RCL
             13
    3.
    3.      RCL
             14
    0.
    0.      RCL
             15
    4.
    4.      RCL
             16
    1.
    1.      RCL
             17
    2.
    2.      RCL
             18
0.0624
0.0624      RCL
             19
   18.
   18.      RCL
             20
   4.5
   4.5      RCL
             46
  12.5

2.348480052

12.14773973
```

~~.4953003165~~

17.26817951 ← F.S. vs. OVERTURNING → 2.348480052

```
[illegible] 0.055     RCL
                        1
    102.
    102.        RCL
                        2
    30.3
    30.3        RCL
                        3
    96.
    96.         RCL
                        4
    21.
    21.         RCL
                        5
    76.
    76.         RCL
                        6
    13.
    13.         RCL
                        7
    0.
    0.          RCL
                        8
    12.
    12.         RCL
                        9
    0.
    0.          RCL
                       10
    0.45
    0.45        RCL
                       11
    0.055
    0.055       RCL
                       12
    0.3
    0.3         RCL
                       13
    3.
    3.          RCL
                       14
    11.
    11.         RCL
                       15
    4.
    4.          RCL
                       16
    1.
    1.          RCL
                       17
    2.
    2.          RCL
                       18
    0.0624
    0.0624      RCL
                       19
    18.
    18.         RCL
                       20
    4.5
    4.5         RCL
                       46
    12.5

4.917285605 <

16.85379203
```

```
[illegible] 0.15 [illegible] 0.055     RCL
                                         1
    102.
    102.        RCL
                        2
    30.3
    30.3        RCL
                        3
    96.
    96.         RCL
                        4
    21.
    21.         RCL
                        5
    76.
    76.         RCL
                        6
    13.
    13.         RCL
                        7
    0.
    0.          RCL
                        8
    12.
    12.         RCL
                        9
    0.
    0.          RCL
                       10
    0.45
    0.45        RCL
                       11
    0.055
    0.055       RCL
                       12
    0.3
    0.3         RCL
                       13
    3.
    3.          RCL
                       14
    0.
    0.          RCL
                       15
    4.
    4.          RCL
                       16
    1.
    1.          RCL
                       17
    2.
    2.          RCL
                       18
    0.0624
    0.0624      RCL
                       19
    18.
    18.         RCL
                       20
    4.5
    4.5         RCL
                       46
    12.5
    12.5        RCL
                       50
    0.1

[illegible] vs. [illegible] ---> 6.030156[illegible]

17.64780666
```

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB: Mill Pond Dam
SHEET NO.: 1
CHECKED BY:
DATE:
SUBJECT: Structural Stability Analysis
COMPUTED BY: RLW
DATE: 5/6/80

ADJUST THE SLIDING RESISTANCES TO ACCOUNT FOR THE EFFECT OF THE SHEET PILE

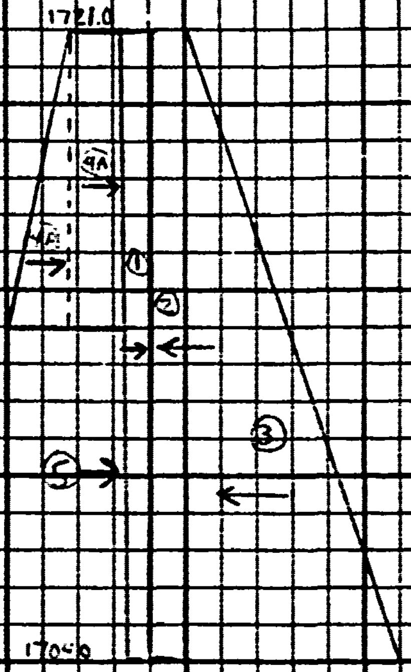
1. CALCULATE PRESSURE DUE TO SHEET PILING

$\phi = 33^\circ$

$K_a = .29$

$K_p = 3.39$

$\gamma_{SUB} = 55\#/CF$



LOADS

ACTIVE

① 3(.055)(.29)(17) = .85

(4A) (3.5)(.0624)(7) = 1.53

(4B) (½)(7)²(.0624) = 1.54

⑤ (.0624)(10)² = 6.24

PASSIVE

② 3(.055)(3.39)(7) = 9.52

③ ½(17)²(.055)(3.39 − .29) = 24.65

$\Sigma F_x = 24.65 + 9.52 - .85 - 1.53 - 1.54 - 6.24$

$= 24.01K$

00-15-1 (3/78)
Formerly GA-17

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PROJECT GRID

JOB MILL POND DAM	SHEET NO. 2	CHECKED BY	DATE
SUBJECT STRUCTURAL STABILITY ANALYSIS		COMPUTED BY RLW	DATE 5/6/80

2. ADD EFFECTS OF SHEET PILE INTO COMPUTER STABILITY RESULTS

NORMAL CONDITIONS

$$F.S. = \frac{7.43 + 24.01}{5.01} = 6.27$$

ICE LOAD

$$F.S. = \frac{7.43 + 24.01}{15.01} = 2.09$$

PMF

$$F.S. = \frac{7.43 + 19.66}{12.24} = 2.15$$

SEISMIC CONDITIONS

$$F.S. = \frac{7.43 + 24.01}{[illegible]5} = 4.46$$

APPENDIX E

REFERENCES

APPENDIX E

REFERENCES

1) U.S. Department of Commerce; Weather Bureau; Hydrometeorological Report No. 33 - Seasonal Variation of the Probable Maximum Precipitation East of the 105th Meridian for Areas from 10 to 1,000 Square Miles and Durations of 6, 12, 24, and 48 Hours, April 1956.

2) H.W. King and E.F. Brater, Handbook of Hydraulics, 5th edition, McGraw-Hill, 1963.

3) University of the State of New York, Geology of New York, Education Leaflet 20, Reprinted 1973.

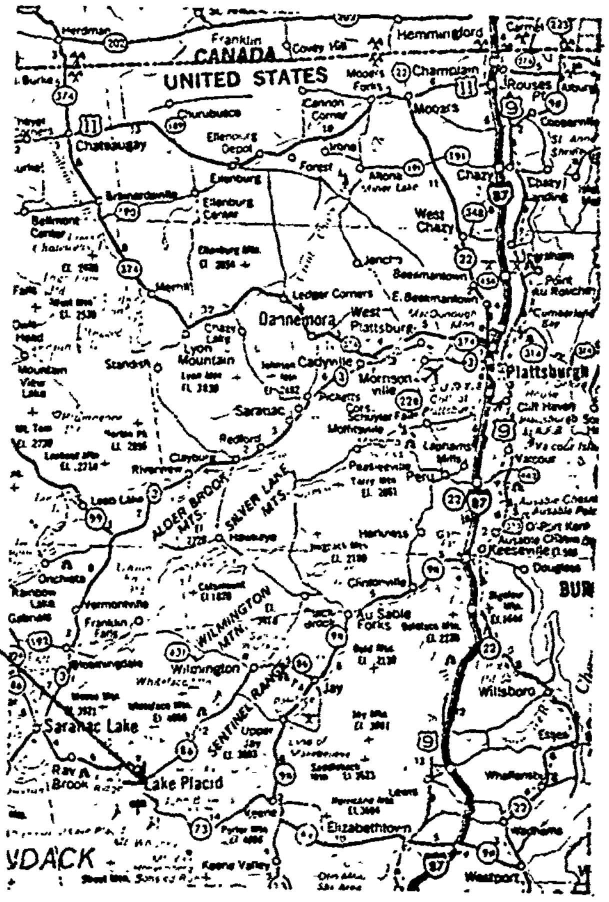
4) Elwyn E. Seelye, Design, 3rd edition, John Wiley and Sons, Inc., 1960.

5) U.S. Department of the Interior, Bureau of Reclamations; Design of Small Dams, 2nd edition (rev. reprint), 1977.

APPENDIX F

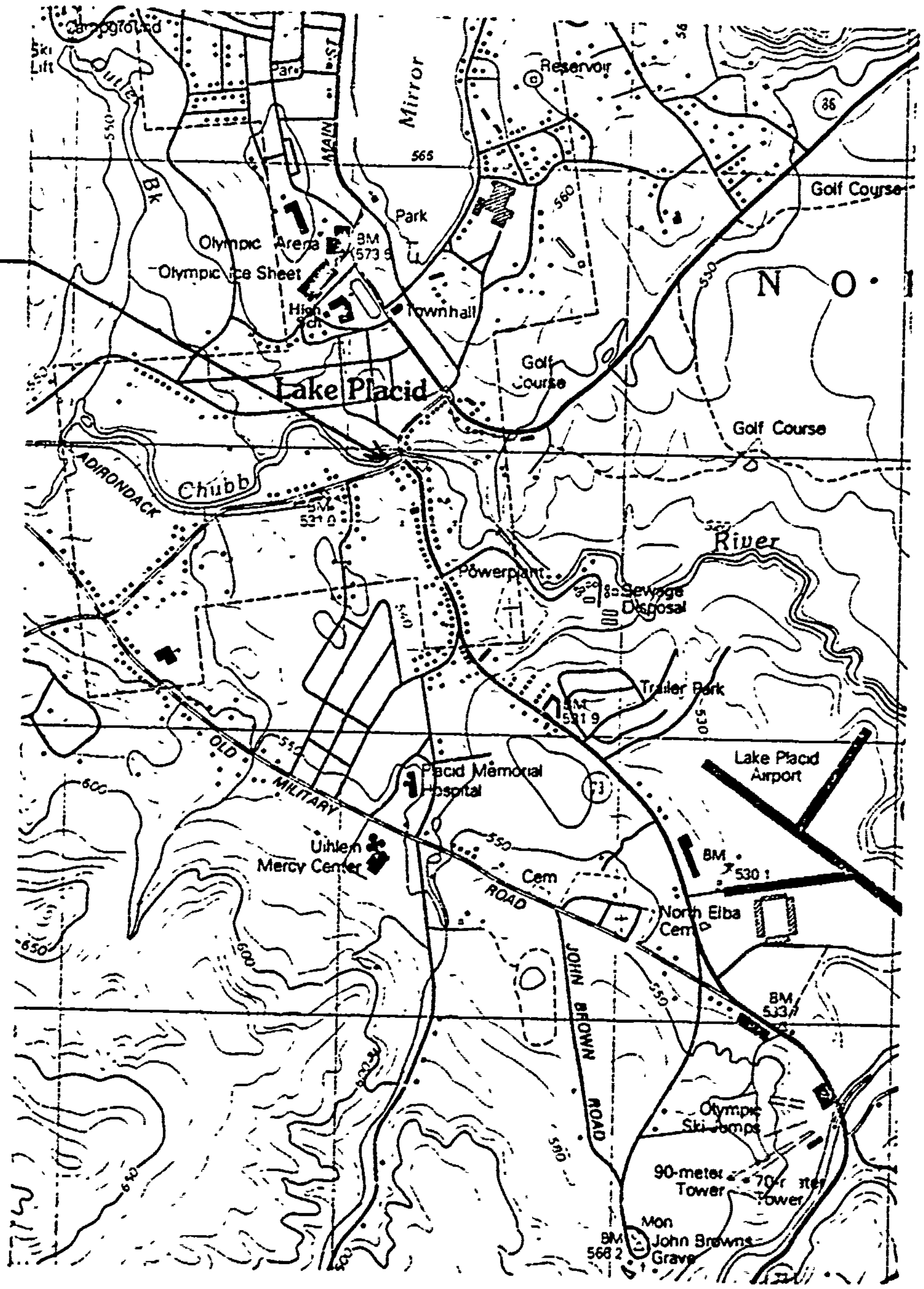
DRAWINGS

DAM SITE


CANADA
UNITED STATES
Chateaugay
Ellenburg
Champlain
Rouses Pt.
Chazy
West Chazy
Dannemora
Lyon Mountain
Plattsburgh
Cadyville
Saranac
Redford
Peru
Keeseville
Au Sable Forks
Wilmington
Jay
Saranac Lake
Lake Placid
Elizabethtown
Westport
Willsboro
Essex
ALDER BROOK MTS.
SILVER LAKE MTS.
WILMINGTON MTN.
SENTINEL RANGE
Keene Valley
Keene
Vermontville
Bloomingdale
Ray Brook
Merrill
Riverview
Clayburg
Loon Lake
Clintonville
Port Kent
Valcour
Morrisonville
Beekmantown
Mooers
Hemmingford
Franklin
DACK

VICINITY MAP
MILL POND DAM
I.D. NO. NY 368

DAM SITE


Campground
Ski Lift
Outlet
Bk
Mirror
Main St
Park
Reservoir
Golf Course
Olympic Arena
BM 573.5
Olympic Ice Sheet
High Sch
Townhall
Lake Placid
Golf Course
N O
Chubb
River
ADIRONDACK
BM 531.0
Powerplant
Sewage Disposal
Trailer Park
BM 531.9
Lake Placid Airport
Placid Memorial Hospital
Uihlein Mercy Center
OLD MILITARY ROAD
Cem
North Elba Cem
BM 530.1
BM 533.7
JOHN BROWN ROAD
Olympic Ski Jumps
90-meter Tower
70-meter Tower
Mon
John Browns Grave
BM 568.2
565
560
550
530
540
600
650
590

TOPOGRAPHIC MAP
MILL POND DAM
I.D. NO. NY 368

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK 12201

ES

APPLICATION FOR PERMIT

FOR THE CONSTRUCTION, RECONSTRUCTION OR REPAIR OF A DAM OR OTHER IMPOUNDMENT STRUCTURE UNDER ENVIRONMENTAL CONSERVATION LAW, SECTION 15-0503

FOR DEPARTMENT USE ONLY
Application No. 516-12-0135-77
Dam No. 201C-4289
Watershed Champlain

d instructions on the reverse side before completing this application. Please type or print clearly in ink.

NAME AND ADDRESS OF APPLICANT
First Name M.I. Last Name | Phone No.
Village of Lake Placid
Street Address
301 Main Street
Post Office State Zip Code
Lake Placid New York 12946

2. NAME AND ADDRESS OF OWNER (If different from applicant)
First Name M.I. Last Name
Street Address
Post Office State Zip Code

TYPE OF PROJECT
☐ Construction ☒ Reconstruction ☐ Repair

4. IS STATE-OWNED LAND TO BE USED? ☐ Yes ☒ No

5. PROPOSED STARTING DATE May 1, 1977

EXPECTED COMPLETION DATE September 30, 1977

OJECT DESCRIPTION

LOCATION OF DAM
Stream or Body of Water: Chubb River
County: Essex
Town: North Elba
Give distance and direction from commonly accepted landmark: Located in the Newman section of the Village of Lake Placid

LOCATION ON U.S. GEOLOGICAL SURVEY MAP
Name of Map: ake Placid uadrangle
Latitude: 44°17'N
Longitude: 73°59'W

8. PROPOSED USE FOR IMPOUNDED WATER: Business Development, Safety Aesthetic, Recreational

9. STATE THE HEIGHT ABOVE SPILLCREST OF THE LOWEST PART OF THE IMMEDIATE UPSTREAM ADJOINING PROPERTY OR PROPERTIES 2 Feet

IS THIS PROPOSED POND OR LAKE PART OF A PUBLIC WATER SUPPLY? ☐ Yes ☒ No
If not, where is nearest downstream public water supply intake?

11. SIZE OF AREA DRAINING INTO POND OR LAKE (Acres or Square Miles) 16.5 sq. miles

THE DRAINAGE AREA IS COMPOSED OF: (Total = 100%)
83 % Forest ___ % Cropland 5 % Pasture ___ % Other 5 % Swamp 5 % Suburban Lands 2 % Urban Lands

TYPE OF SPILLWAY
☒ Service Spillway — Auxiliary Spillway Combination with a diversion pipe with a wooden control gate
☐ Single Spillway
☐ Pipe Riser ONLY
☐ Other ________

14. DESIGNER'S ESTIMATE OF CLASS OF HAZARD (As described in "Guidelines for Small Earth Dam Designs")
☐ Class "a" ☒ Class "b" ☐ Class "c"
NOTE: Provide descriptive information on character of downstream area.

SPILLWAY INFLOW DESIGN FLOOD
Frequency 50 yr Flood Peak 1280 c.f.s. Runoff Volume .12"/hr. in.

15b. SERVICE SPILLWAY INFLOW DESIGN FLOOD
Frequency 50 yr Flood Peak 1280 c.f.s. Runoff Volume .12"/hr. in.

THE SINGLE SPILLWAY OR AUXILIARY SPILLWAY IS COMPOSED OF:
☐ Vegetated Earth ☐ Concrete ☒ Timber ☐ Rock-filled Crib ☐ Masonry ☐ Other ________

MAXIMUM VELOCITY WITHIN THE SINGLE OR AUXILIARY SPILLWAY 4.8 f.p.s.

18. SINGLE OR AUXILIARY SPILLWAY DISCHARGE AT DESIGN HIGH WATER 1340 c.f.s.

19. TYPE OF ENERGY DISSIPATER PROVIDED ON SINGLE SPILLWAY
☐ Hydraulic Jump Basin ☒ Drop Structure ☐ Other ________

POND OR LAKE WILL BE DRAINED BY MEANS OF Diversion pipe with wooden control gate

WATER WILL BE SUPPLIED TO RIPARIAN OWNERS DOWNSTREAM BY MEANS OF Continuous flow over the spillway or through diversion pipe

HEIGHT OF DAM ABOVE STREAM BED 18 Feet

AREA-CAPACITY DATA
Answer 1, 2 and 3, OR 1, 2, 4, 5

	ELEVATION, Referred To Assumed Benchmark	SURFACE AREA	VOLUME STORED
1. Top of Dam	1730.5 Feet	28 Acres	266 Acre-Feet
2. Design High Water	1729.0 Feet	27 Acres	216 Acre-Feet
3. Single Spillway Crest	Feet	Acres	Acre-Feet
4. Auxiliary Spillway Crest	1726.5 Feet	25 Acres	137 Acre-Feet
5. Service Spillway Crest	1725.0 Feet	22 Acres	88 Acre-Feet

TYPE OF ENERGY DISSIPATER AT OUTLET OF CONDUIT:
☐ Impact Basin ☒ Plunge Pool ☐ Hydraulic Jump Basin ☐ Other ________

IS PIPE RISER PROVIDED WITH AN ANTI-VORTEX DEVICE? ☐ Yes ☐ No NA

DRAWDOWN TIMES: Answer 1 and 2, or 1, 3 and 4

1. Has provision been made to evacuate 90% of the storage [illegible] the lowest spillway crest within fourteen days? ☒ Yes ☐ No
2. Can the single spillway evacuate 75% of the storage between the maximum design high water and the spillway crest within 48 hours? ☐ Yes ☐ No
3. Can the Service Spillway evacuate 75% of the storage between the auxiliary spillway and the Service Spillway crests within seven days? ☒ Yes ☐ No
4. Can the Service Spillway and the Auxiliary Spillway in combination evacuate the storage between the design high water and the auxiliary spillway crest within 12 hours? ☒ Yes ☐ No

ENVIRONMENTAL ANALYSIS UNIT
REGION 5
RAY BROOK, N. Y.
MAR 22 1977
DEPT. OF
ENVIRONMENTAL CONSERVATION

-19-2 (8/75)
merly WR-36

— State the character of the bed and banks in respect to natural types of soil materials, hardness, perviousness, water bearing, effect of exposure to air and water, uniformity, etc.

e er bed soil profile is indicated on the attached soil boring logs. A steel sheet wall is proposed to prevent piping under the dam.

A lk-over reconnaissance of the pond bed indicates that the soils are generally fine sands taining a high percentage of silt. The pond should be relatively impervious due to position of sediments from the previous impoundment.

What rce of embankment fill material(s)?

ere porous seams or fissures b the foundation of the proposed dam? ☐ Yes ☒ No Method used to obtain the above soil data ☒ Soil Borings ☐ Test Pits

GN ENGINEER ne of Agency or Individual	P.E. License No. of Individual	26. CONSTRUCTION ENGINEER OR CONTRACTOR Name of Agency or Individual	P.E. License No. of Individual
P. Thew, P.E./L.S.	043732	Spencer F. Thew, P.E./L.S.	043732
Canton, New York 13617		Address Same	
		Title	

DRESS OF OFFICIAL NEWSPAPER OF LOCALITY WHERE PROPOSED WORKS ARE LOCATED

The Lake Placid News Box 111, Lake Placid, New York 12946

FICATION

lication is hereby made to Department of Environmental Conservation pursuant to Section 15-0503 of the Environmental Conservation Law

cant certifies that the above statements are true and agrees that the issuance of the permit is based on the accuracy thereof. As a n to the issuance of a permit, the applicant accepts full legal responsibility for all damage, direct or indirect, of whatever nature, whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, s, damages and costs of every name and description resulting from the said project.

6/16/77
Date

Signature

INSTRUCTIONS

1. Type or print in INK.
2. Five (5) copies of all papers including detail construction s and specifications must be filed.
3. The plans and specifications submitted with the application must include the following information:
   - (a) A plan showing proposed dam, dam appurtenances, bench marks, topographic contours at dam and around the anticipated reservoir area, including 2-foot contours to 6 feet above high water level.
   - (b) A profile along the dam axis and a transverse section of the dam at its maximum height.
   - (c) A profile along the center line and transverse section, or sections, of the spillways including stilling basins, outlet work, and other details, if necessary, in design of the structures.
   - (d) A topographical plan to a suitable scale showing drainage area, normal water level in the lake or pond and owners perty-line metes and bounds.
   - (e) Specifications for materials and methods of construction.
   - (f) A log of all soil information available to the design engineer or conservationist and location of drill holes, test pits or other foundation exploration, location of borrow area, horizontal and vertical controls, if necessary.
   - (g) Additional drawings should be included to clearly show all details of the proposed works.
4. NO WORK of construction, reconstruction or repairs of the structure or structures SHALL BE STARTED UNTIL A PERMIT therefor has been issued by the New York State Department of Environmental Conservation.
5. The design, preparation of plans, estimates and specifications and the supervision of the erection, reconstruction and repair of all the structures herein applied for shall be done by a licensed professional engineer, or in the case of farm ponds by an engineer or conservationist employed by a governmental agency cooperating with a soil conservation district, or by an engineer employed by the Department of Environmental Conservation.
6. The applicant must publish a "Notice of Application" except for certain minor projects where publication may be dispensed with at the discretion of the Local Permit Agent.
7. An information circular "Guidelines for Small Earth Dam Designs" is available upon request from the Department of Environmental Conservation or the Local Permit Agent.

   This circular outlines hydrologic design criteria which should be utilized by your design engineer in the preparation of plans for each dam.
8. Samples of foundation, embankment and construction materials need not be furnished unless requested.

ATLANTIC TESTING LABORATORY

CANTON, NEW YORK

SUBSURFACE INVESTIGATION

Report No L-159-7-76

CLIENT: Mill Pond Committee

Location of Boring See Plan Number E69-A-3-77

PROJECT: Mill Pond Dam

Date, start 7/27/76 Finish 7/27/76

Boring No. B-1 Sheet 1 of 1

Casing Hammer

Wt. ______ lbs.

Fall 1715.7 in.

Sampler Hammer

Wt. 140 lbs.

Fall 30 in.

☐ ______ I.D. Casing

Ground Elev. ______ ☒ $2\frac{3}{4}$" I.D. H.S. Auger

Ground Water Observations

Date	Time	Depth	Casing at
7/27/76	2:45	6.0'	10.0'
7/27/76	4:00	1.5'	Out

DEPTH	CASING BLOWS/FT.	SAMPLE NO.	DEPTH OF SAMPLE FROM	DEPTH OF SAMPLE TO	TYPE SAMPLE	BLOWS ON SAMPLER PER 6" SAMPLER O.D. 2"	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL F — FINE M — MEDIUM C — COARSE AND — 35—50% SOME — 20—35% LITTLE — 10—20% TRACE — 0—10%	DEPTH
		1	0.0	2.0	ss	1-3-2-4	2.0	Brown cmf SAND; some SILT; trace f GRAVEL; trace ORGANIC (wet, non-plastic) FILL	
		2	2.0	4.0	ss	2-2-1-5	4.0	Brown cmf SAND; little SILT; trace mf GRAVEL; trace DECOMPOSED WOOD (wet, non-plastic) FILL	
		3	4.0	6.0	ss	9-5-7-8		Brownish Grey cmf SAND; little SILT; ([illegible], non-plastic)	
	Augers	4	6.0	8.0	ss	13-14-22-28	8.0	Ditto	
		5	8.0	9.5	ss	16-20-28		Brownish Grey cmf SAND; trace SILT (wet, non-plastic)	
		6	10.0	12.0	ss	4-12-22-36	12.0	Ditto	
		7	15.0	16.5	ss	34-43-89	30.0	Brownish Grey cmf SAND; little mf GRAVEL; little SILT (wet, non-plastic)	
30								Bottom Boring 30.0'	

Encountered flowing sand at 12'

Material increased in denseness with depth from 12 to 30 feet.

SS — SPLIT SPOON SAMPLE
U — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Richard Collins Jack DenBleyker

ATLANTIC TESTING LABORATORY

CANTON, NEW YORK

SUESURFACE INVESTIGATION

Report No L-159-7-76

CLIENT: Mill Pond Committee

Location of Boring See Plan Number E69-A-3-77

PROJECT: Mill Pond Dam

Date, start 7/28/76 Finish 7/28/76

Boring No. B-2 Sheet 1 of 1

Casing Hammer

Wt. ______ lbs.

Fall 1714.5 in.

Sampler Hammer

Wt. 140 lbs.

Fall 30 in.

☐ ______ I.D. Casing

Ground Elev. ______ ☒ 2 3/4" I.D. H.S. Auger

Ground Water Observations

Date	Time	Depth	Casing at
7/28/76	12:45	4.0'	6.0'
7/28/76	3:00	1.0'	Out

Depth	Casing Blows/Ft.	Sample No.	Depth of Sample From	Depth of Sample To	Type Sample	Blows on Sampler per 6" Sampler O.D. 2"	Depth of Change	Classification of Material F — Fine M — Medium C — Coarse And — 35—50% Some — 20—35% Little — 10—20% Trace — 0—10%	Depth
	Augers	1	0.0	2.0	ss	pushed	2.0	Dark Brown SILT; little mf SAND; trace mf GRAVEL; trace ORGANIC; trace DECOMPOSED WOOD (wet, non-plastic) FILL	
		2	2.0	4.0	ss	1-1-1-1	4.0	Dark Brown SILT; little ORGANIC; trace mf SAND; trace DECOMPOSED WOOD (wet, non-plastic) FILL	
		3	4.0	6.0	ss	1-3-2-1	6.0	Dark Brown SILT; little ORGANIC; little mf SILT; trace mf GRAVEL; trace GLASS/DECOMPOSED WOOD (saturated, non-plastic) FILL	
		4	6.0	8.0	ss	7-5-8-7	15.0	Brown c-mf SAND; little SILT; trace f GRAVEL (saturated, non-plastic)	
		5	15.0	16.0	ss	9-38		Dark Brown c-mf SAND; some SILT; little mf GRAVEL (saturated, non-plastic)	
			18.0	19.0	ss	74-83			
35							35.0		

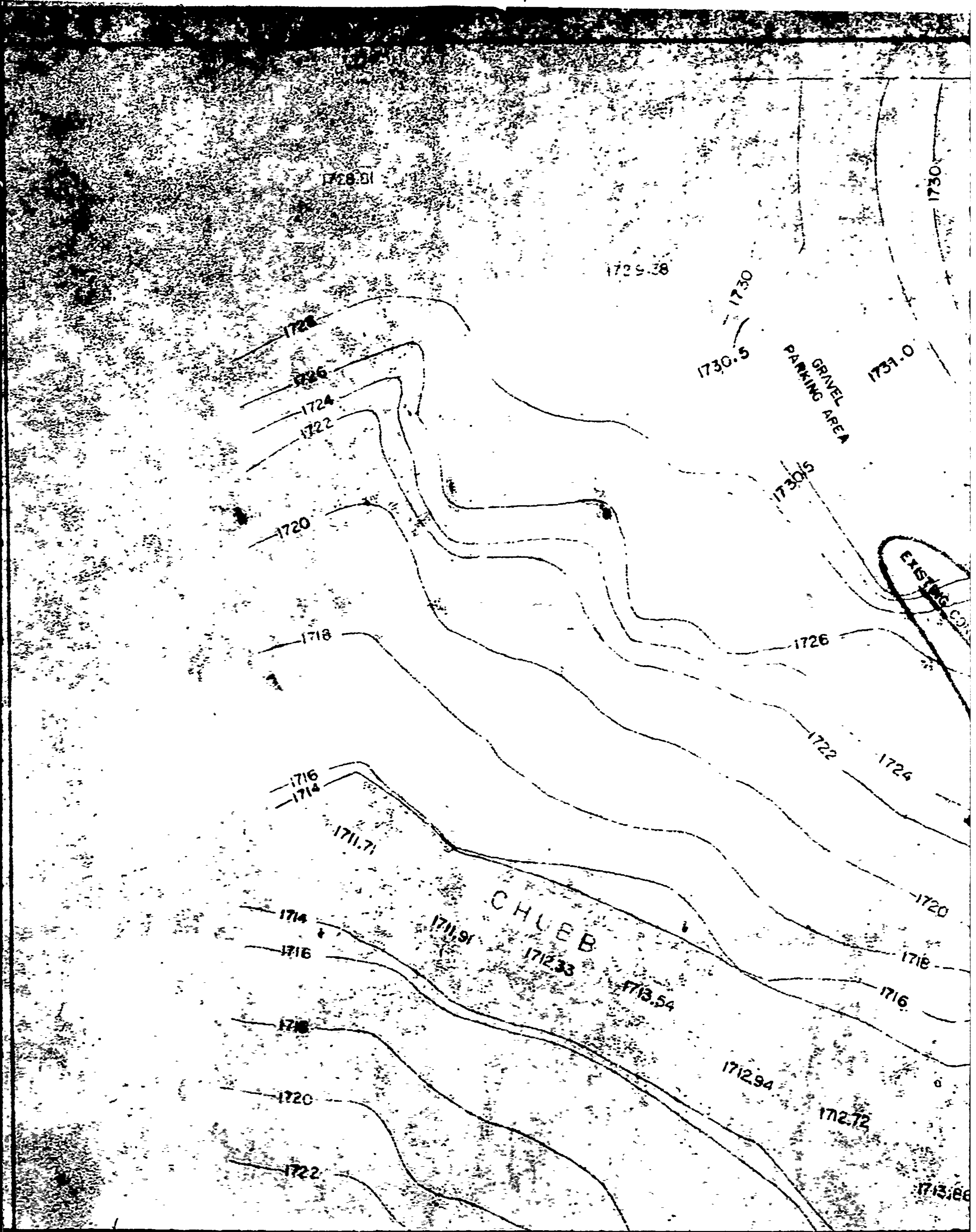
Bottom Boring 35.0'

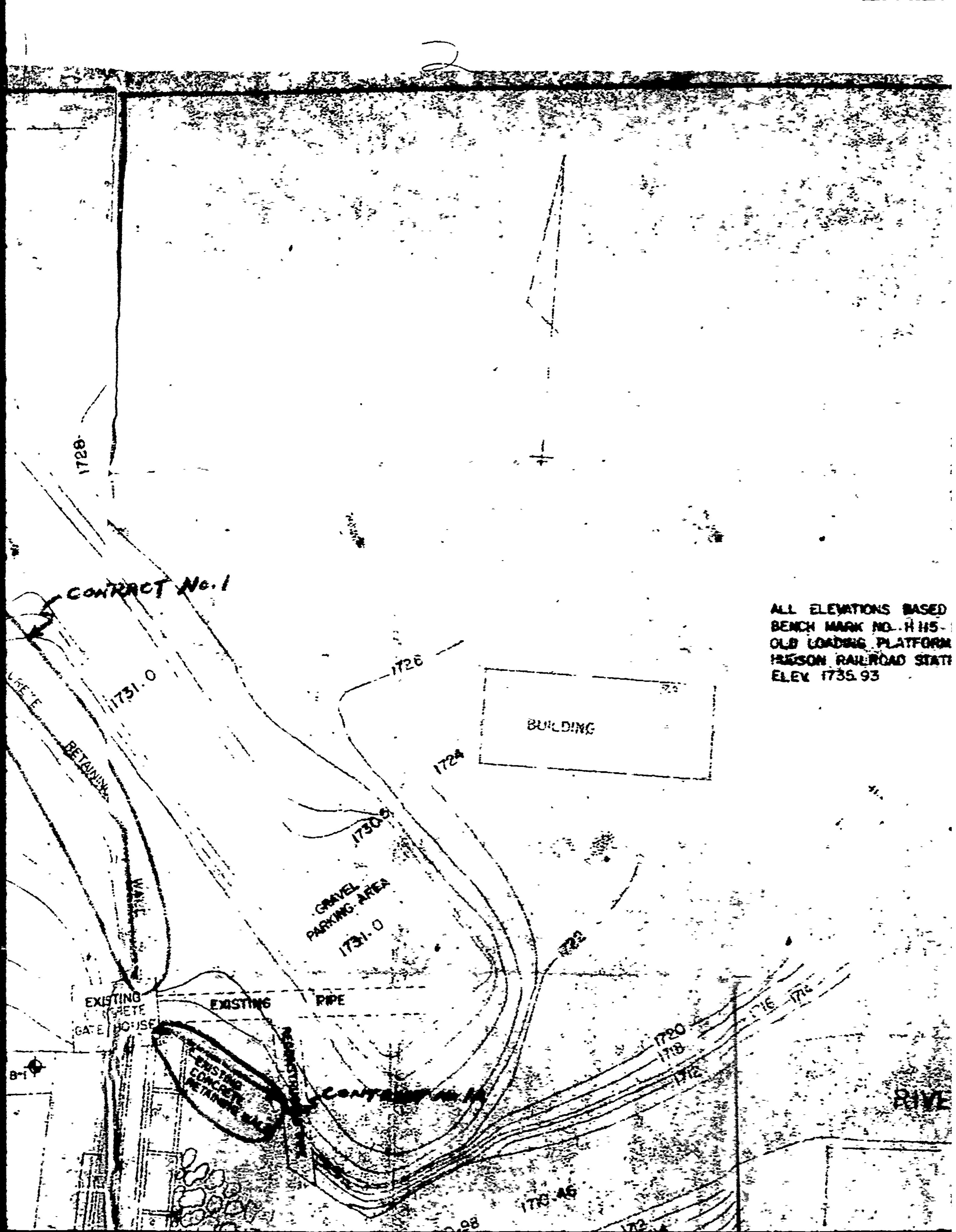
Encountered flowing sand at 12'

Material increased in denseness with depth from 15 to 35 feet.

SS — SPLIT SPOON SAMPLE
S — UNDIS. SHELBY TUBE
P — PISTON TYPE SAMPLE

DRILLERS Richard Collins Jack DenBleyker


1728.01
1729.38
1730
1730.5
GRAVEL PARKING AREA
1731.0
1730
1730.5
EXISTING CON
1728
1726
1724
1722
1720
1718
1726
1722
1724
1720
1716
1714
1711.71
CHUEB
1718
1716
1714
1716
1711.91
1712.33
1713.54
1718
1720
1712.94
1712.72
1722
1713.88


1728
CONTRACT No. 1
1731.0
CRETE
RETAININ
WALL
1726
1724
BUILDING
1730.8
GRAVEL
PARKING AREA
1731.0
1722
EXISTING
CRETE
GATE HOUSE
EXISTING
PIPE
EXISTING
CONCRETE
RETAINING WALL
CONTRACT No. 1A
B-1
1720
1718
1716
1714
1712
1710.46
RIVE

ALL ELEVATIONS BASED
BENCH MARK NO. H 115-
OLD LOADING PLATFORM
HUDSON RAILROAD STAT
ELEV. 1735.93

BASELINE

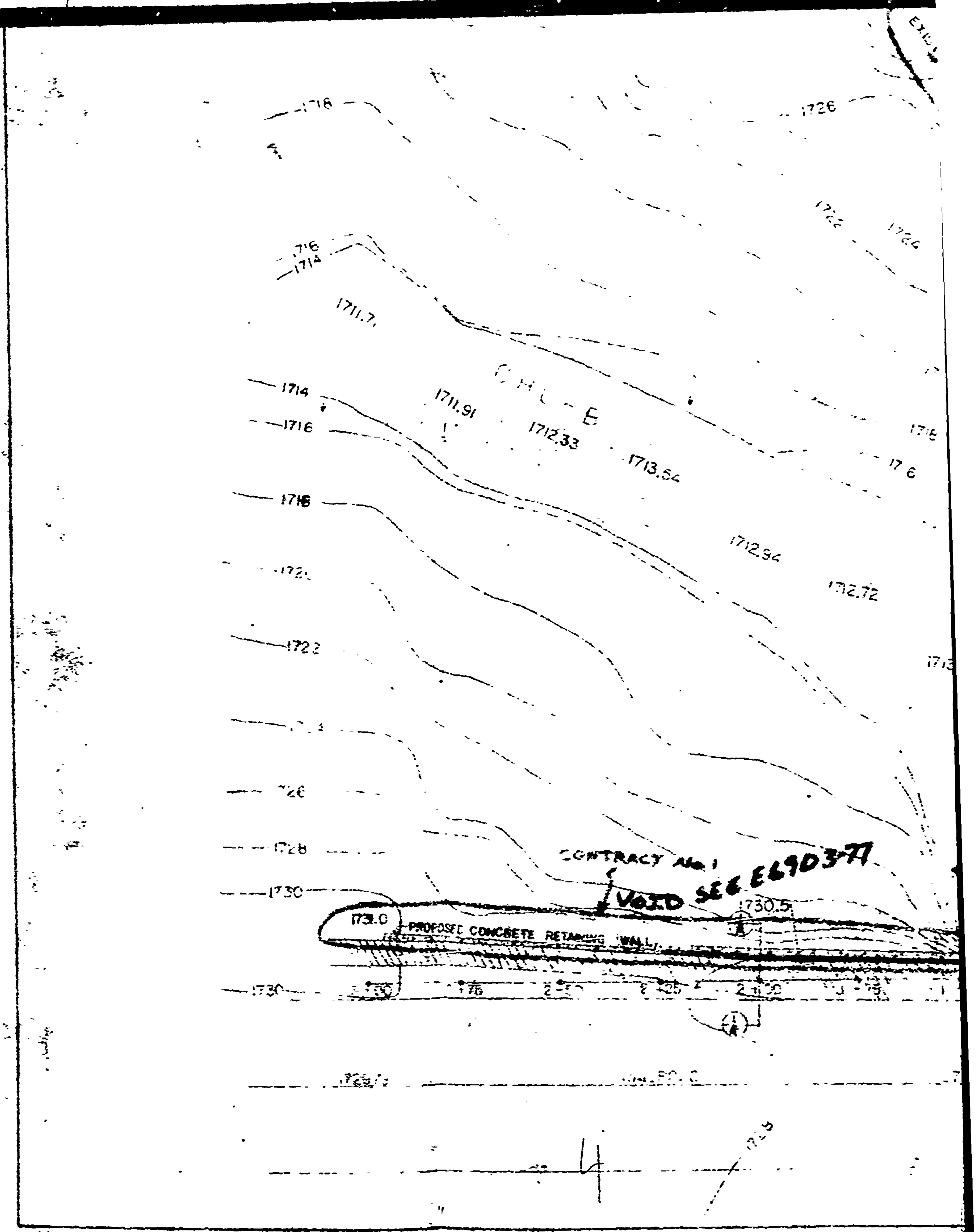
STA.	ELEV.
0+00	1724.72
0+25	1725.07
0+50	1725.5[illegible]
0+75	1725.8[illegible]
1+00	1726.3[illegible]
1+25	1726.76
1+50	1726.76
1+75	1727.42
2+00	1727.74
2+25	1728.30
2+50	1728.65
2+75	1729.[illegible]
3+00	1730.[illegible]

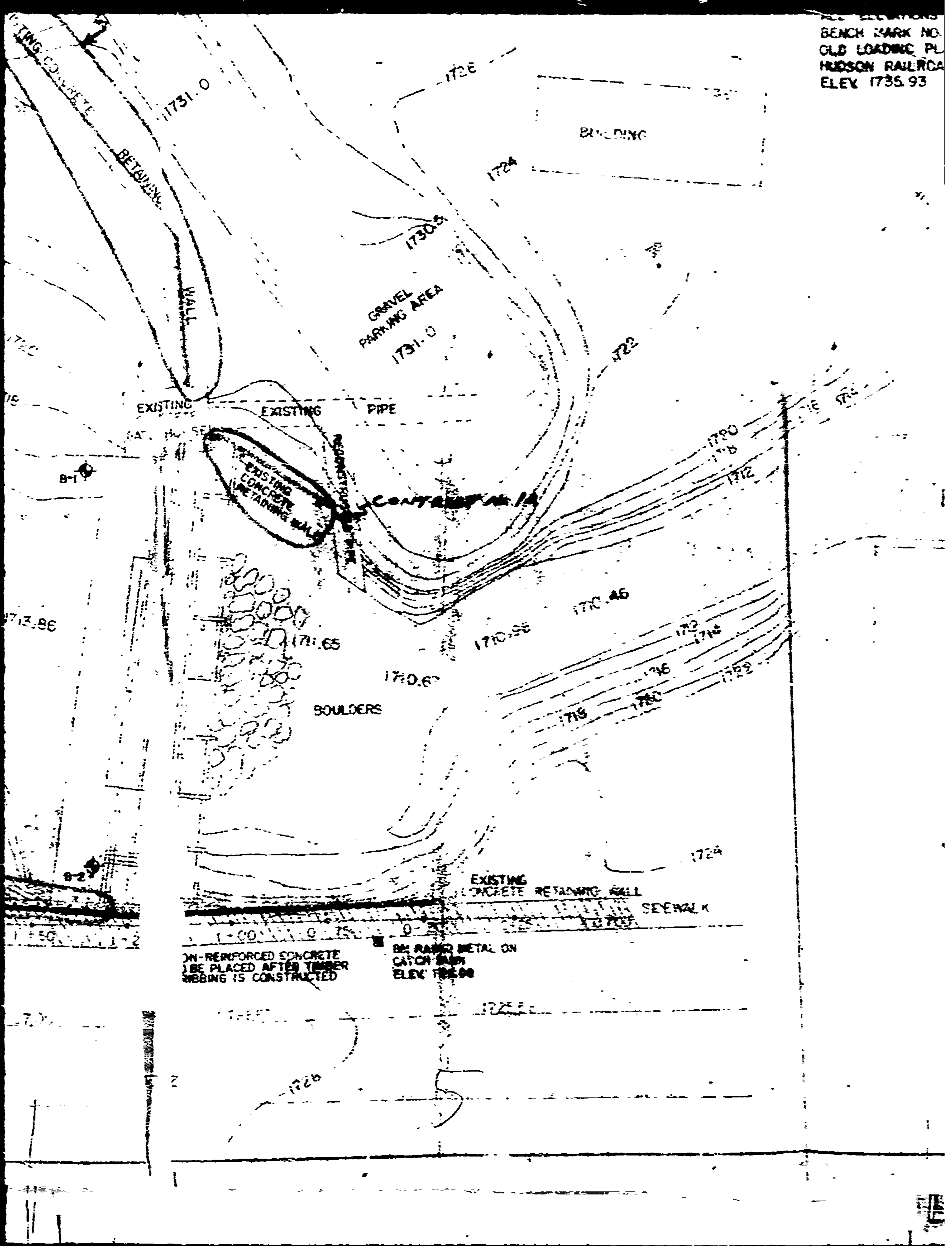
ALL ELEVATIONS BASED ON USGS DATUM
BENCH MARK NO. H 115 NORTHEAST OF
OLD LOADING PLATFORM AT THE DELAWARE &
HUDSON RAILROAD STATION
ELEV. 1735.93

AVERYVILLE RD

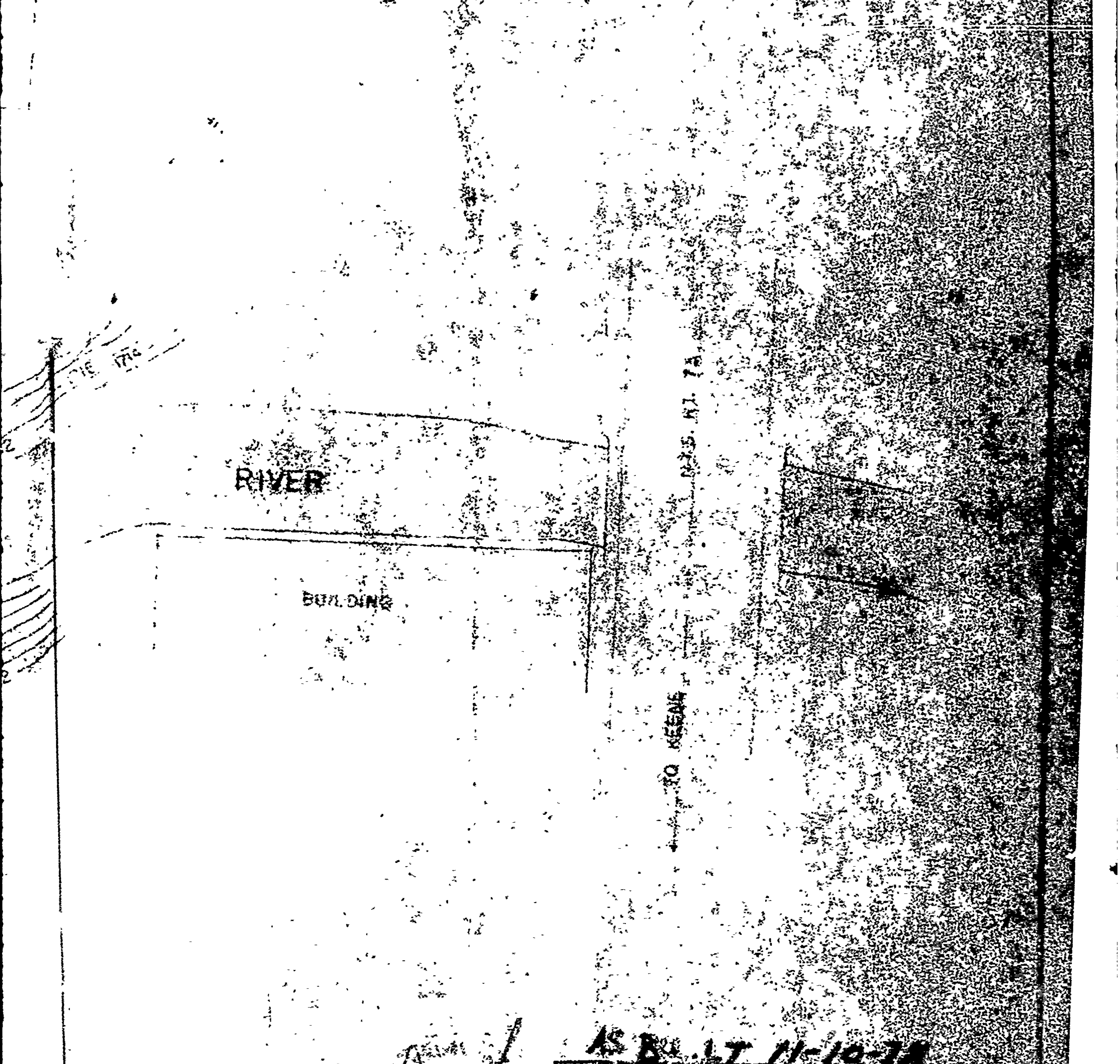
LOCATION MAP
LAKE PLACID, N.Y.

RIVER
BUILDING


1718
1726
1716
1714
1722
1724
1711.7
1714
1711.91
1716
1712.33
1713.54
1716
1718
1712.94
1712.72
1720
1722
1726
1728
CONTRACT No 1
VOID SEE E69D3-77
1730
1731.0
1730.5
PROPOSED CONCRETE RETAINING WALL
1730
1+50
1+75
2+00
2+25
2+50
2+75
1729.75


BENCH MARK NO.
OLD LOADING PL
HUDSON RAILROA
ELEV 1735.93
BUILDING
EXISTING CONCRETE RETAINING WALL
1731.0
1728
1724
1730.5
GRAVEL PARKING AREA
1731.0
1722
EXISTING
GATE HOUSE
EXISTING PIPE
B-1
EXISTING CONCRETE RETAINING WALL
CONTAINMENT NO. 1A
1720
1718
1712
1713.86
1711.65
1710.98
1710.46
1710.67
BOULDERS
1712
1714
1716
1718
1720
1722
1724
B-2
EXISTING CONCRETE RETAINING WALL
SIDEWALK
1+50
1+00
0+75
0+
NON-REINFORCED CONCRETE TO BE PLACED AFTER TIMBER CRIBBING IS CONSTRUCTED
BM RAISED METAL ON CATCH BASIN ELEV 1726.08
1725.5
1726
N

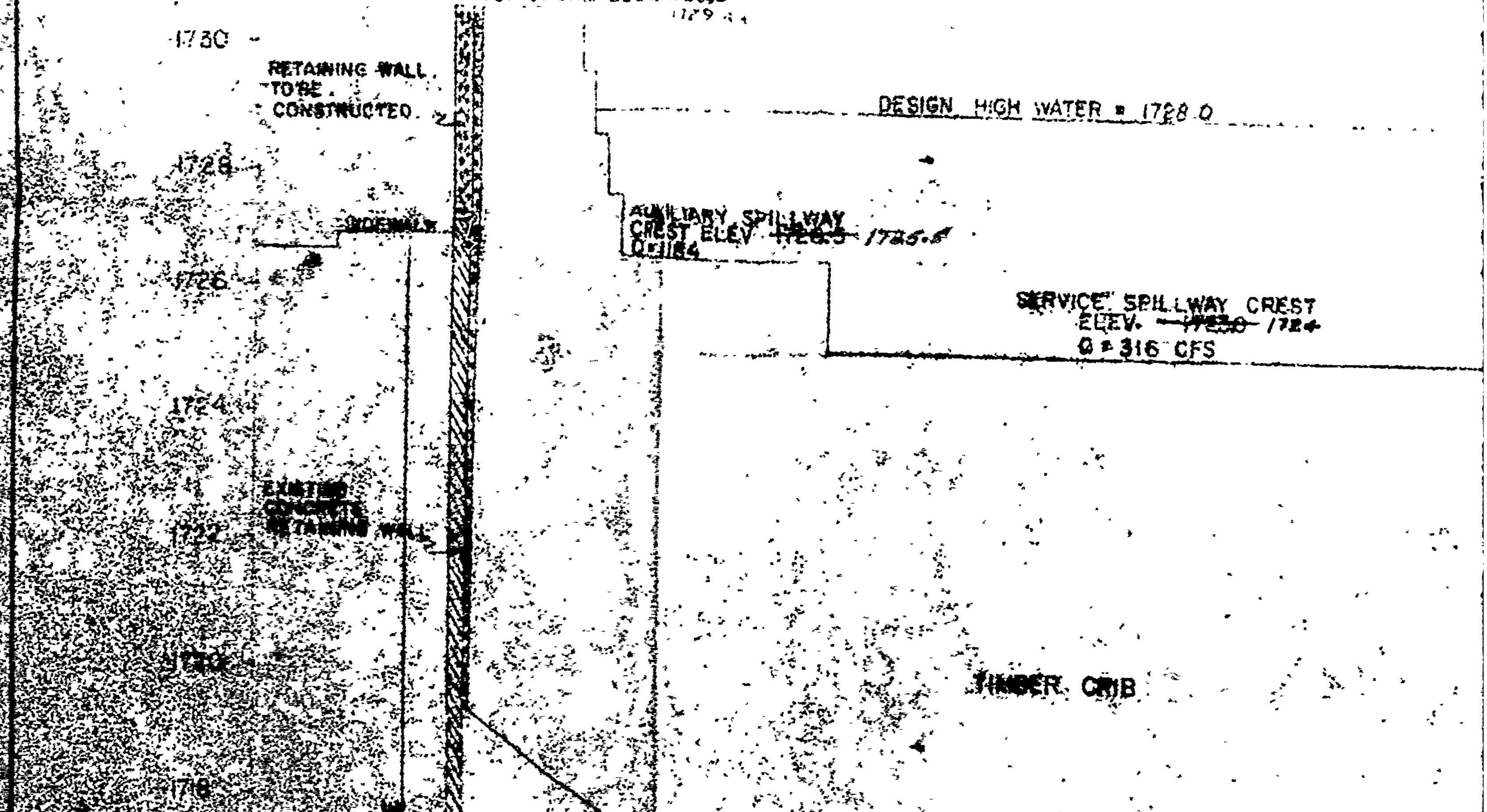
ALL ELEVATIONS BASED ON USGS DATUM
BENCH MARK NO. H 115 NORTHEAST OF
OLD LOADING PLATFORM AT THE DELAWARE &
HUDSON RAILROAD STATION
ELEV. 1735.93


LOCATION MAP
LAKE PLACID N.Y.
RIVER
BUILDING
TO KEENE N.Y. RT 73

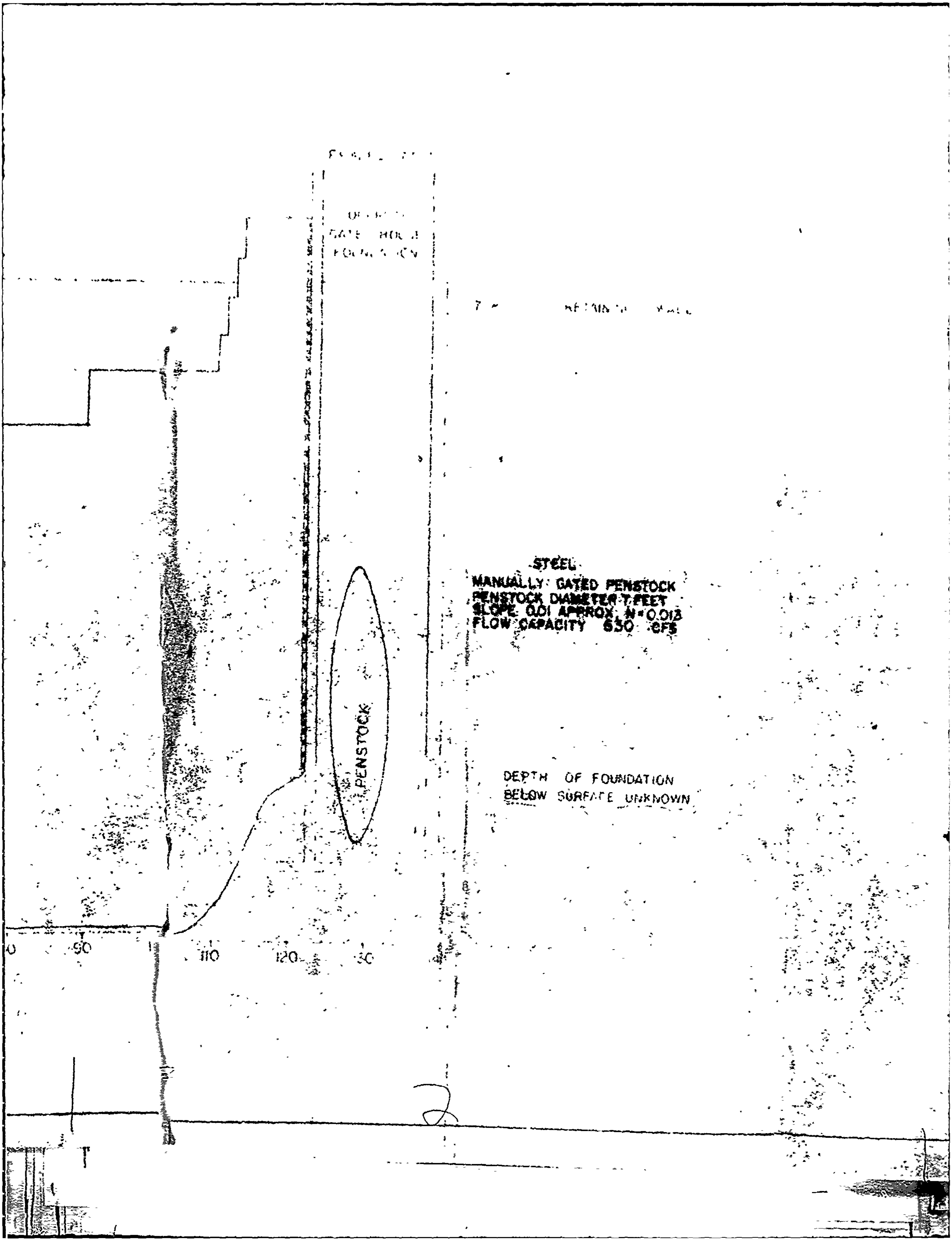
AS BUILT 11-10-78

MILL POND DAM RECONSTRUCTION
SCALE 1" = 20'
DATE 3-15-77
APPROVED BY
VILLAGE OF LAKE PLACID
ESSEX COUNTY
STATE OF NEW YORK

6


TOP OF DAM ELEV. ~~1730.5~~ 1729.4
RETAINING WALL TO BE CONSTRUCTED
DESIGN HIGH WATER = 1728.0
SIDEWALK
AUXILIARY SPILLWAY CREST ELEV. ~~1726.5~~ 1725.5
Q=1184
SERVICE SPILLWAY CREST ELEV. ~~1725.0~~ 1724
Q = 316 CFS
EXISTING CONCRETE RETAINING WALL
TIMBER CRIB
BASE LINE
1730
1728
1726
1724
1722
1720
1718
1716
1714
1712
0
10
20
30
40
50
60
70
80

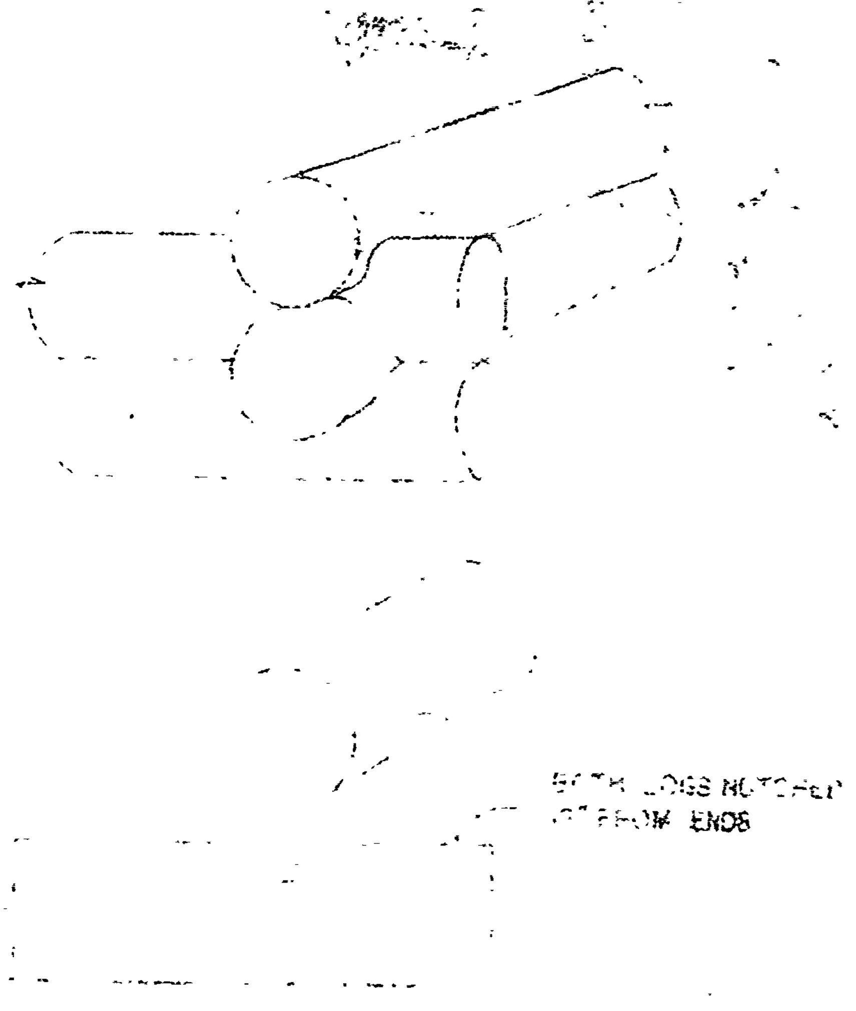
1


GATE HOUSE FOUNDATION
RETAINING WALL
STEEL
MANUALLY GATED PENSTOCK
PENSTOCK DIAMETER 7 FEET
SLOPE 0.01 APPROX. N=0.013
FLOW CAPACITY 630 CFS
PENSTOCK
DEPTH OF FOUNDATION
BELOW SURFACE UNKNOWN
90
110
120
130
2

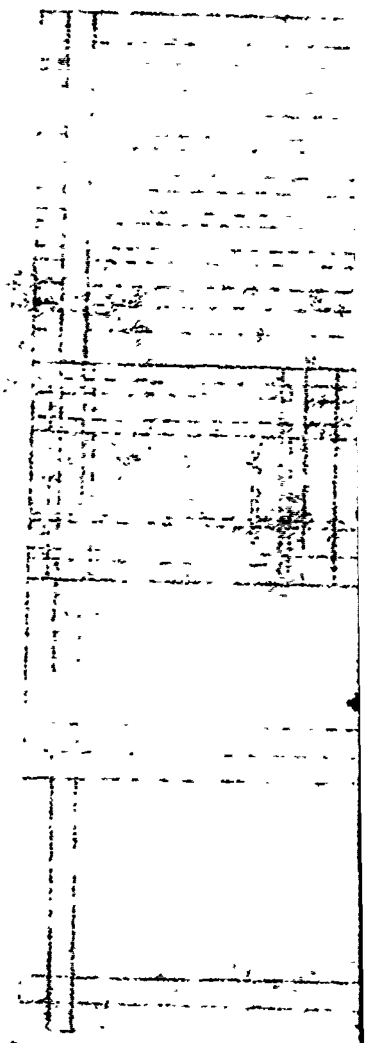
AS BUILT 11-10-78

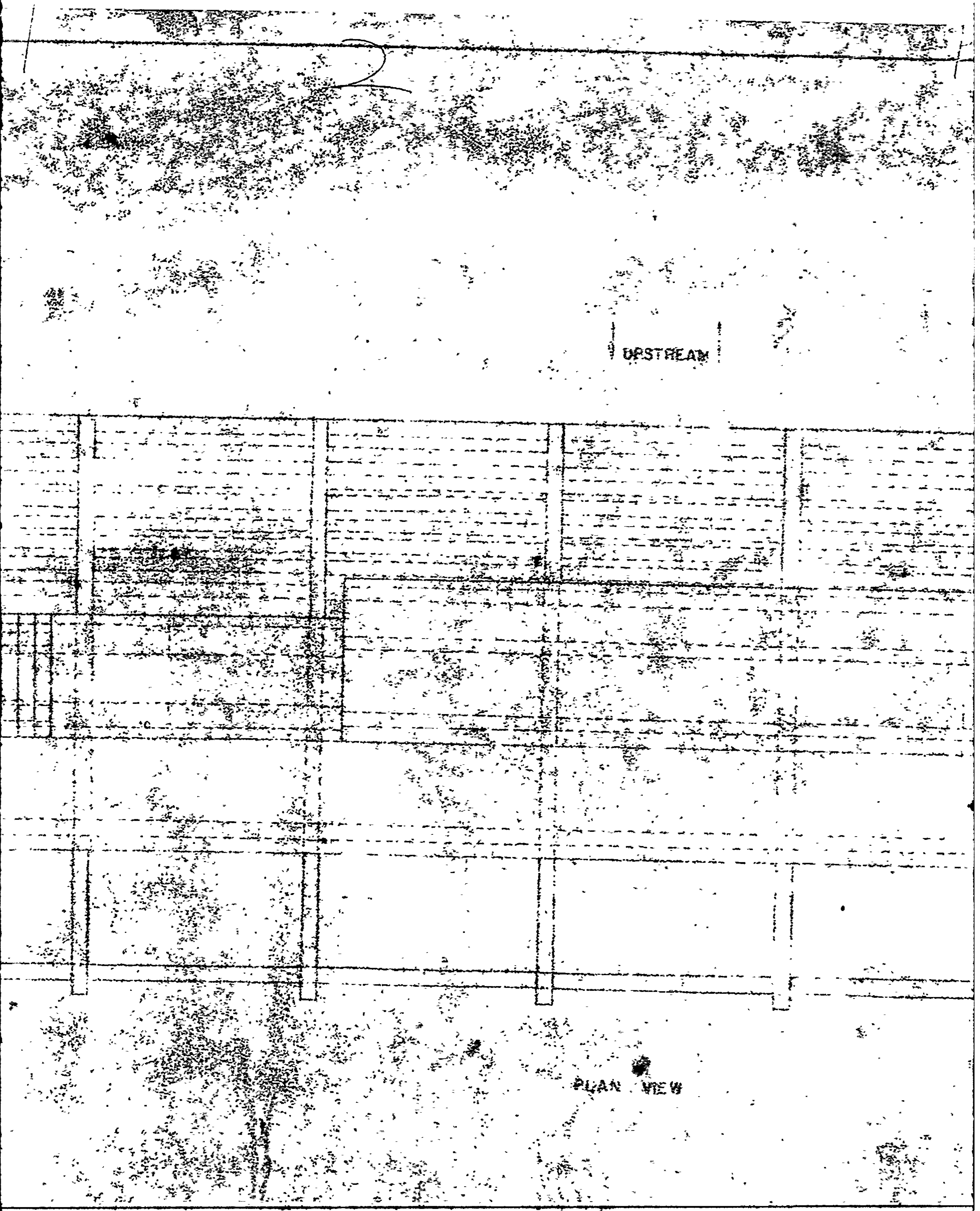
DAM CROSS SECTION

MT. [illegible] RECONSTRUCTION
LAKE PLACID, NEW YORK

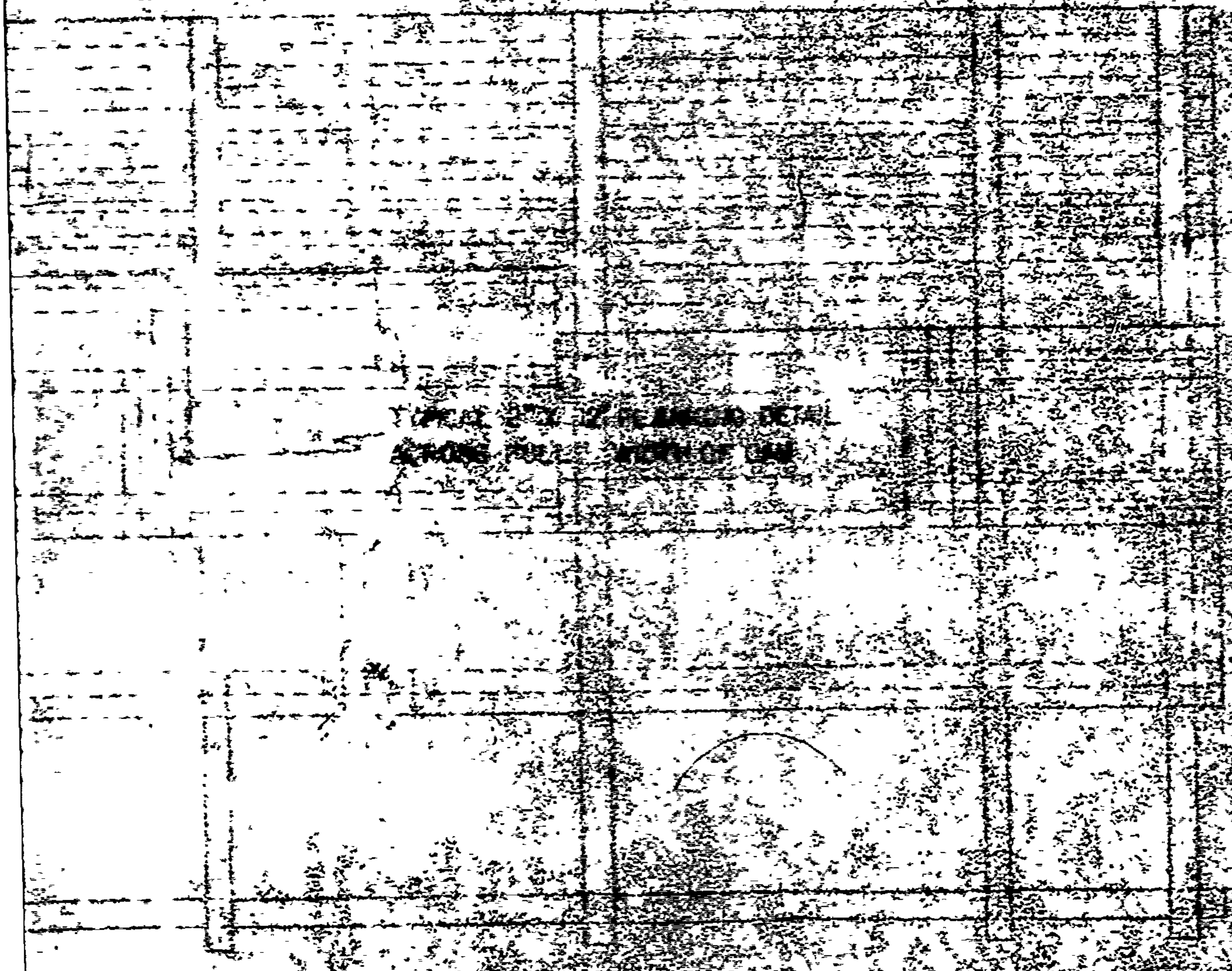

BOTH LOGS NOTCHED
[illegible] FROM ENDS

DETAIL A
LOG [illegible] DETAILS

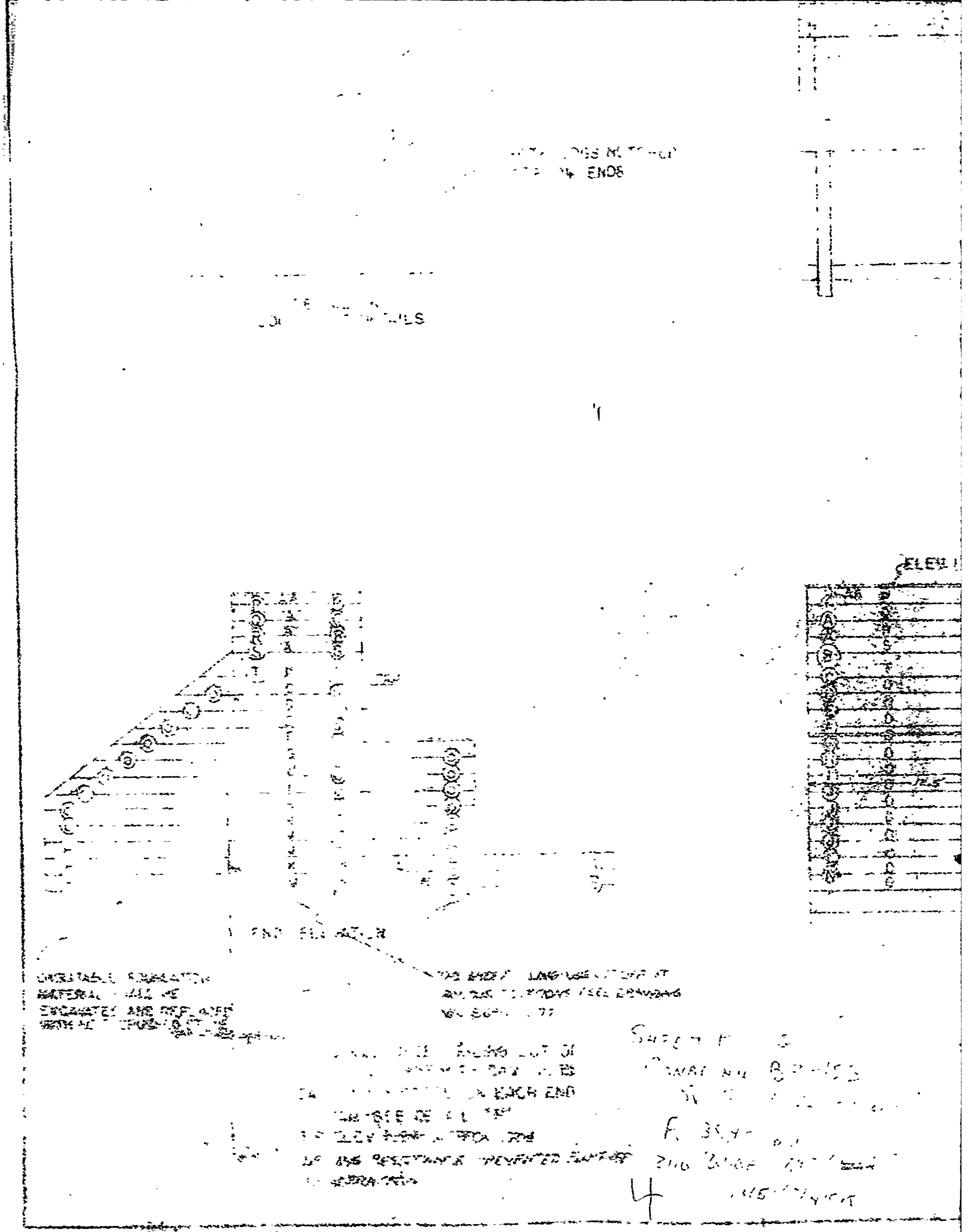


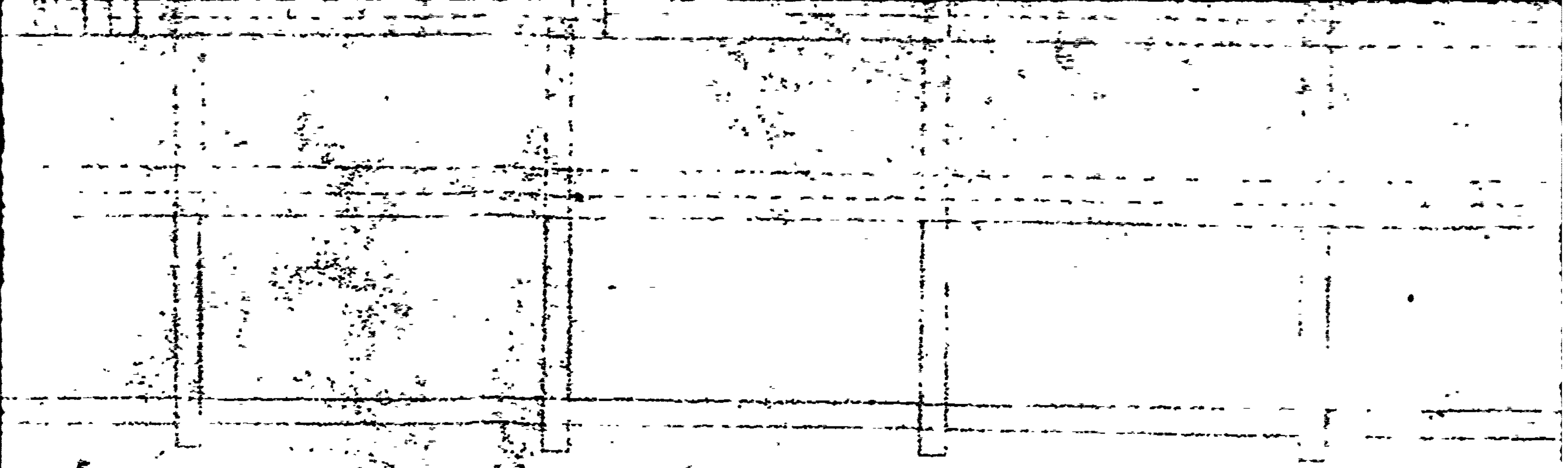


PLAN VIEW

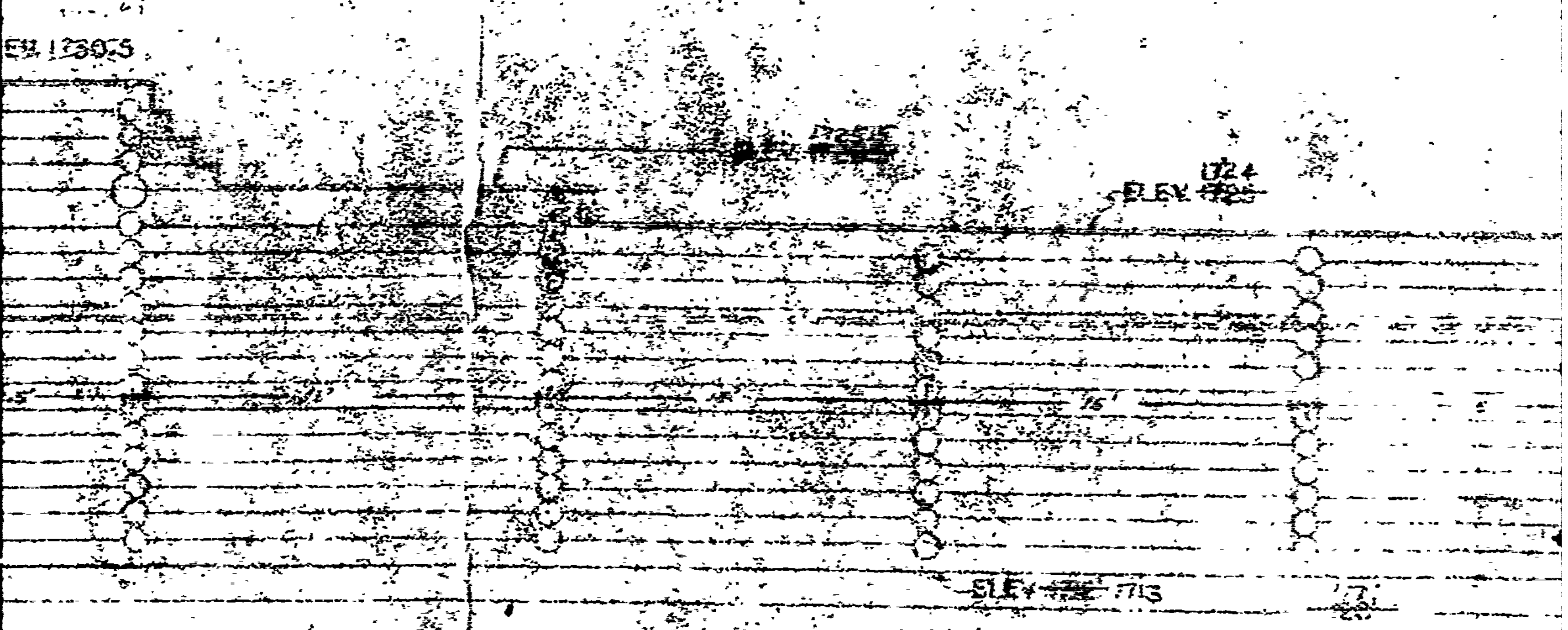


TYPICAL 2"X 12" PLANKING DETAIL ACROSS FULL WIDTH OF DAM

ENDS
END ELEVATION
EACH END
4

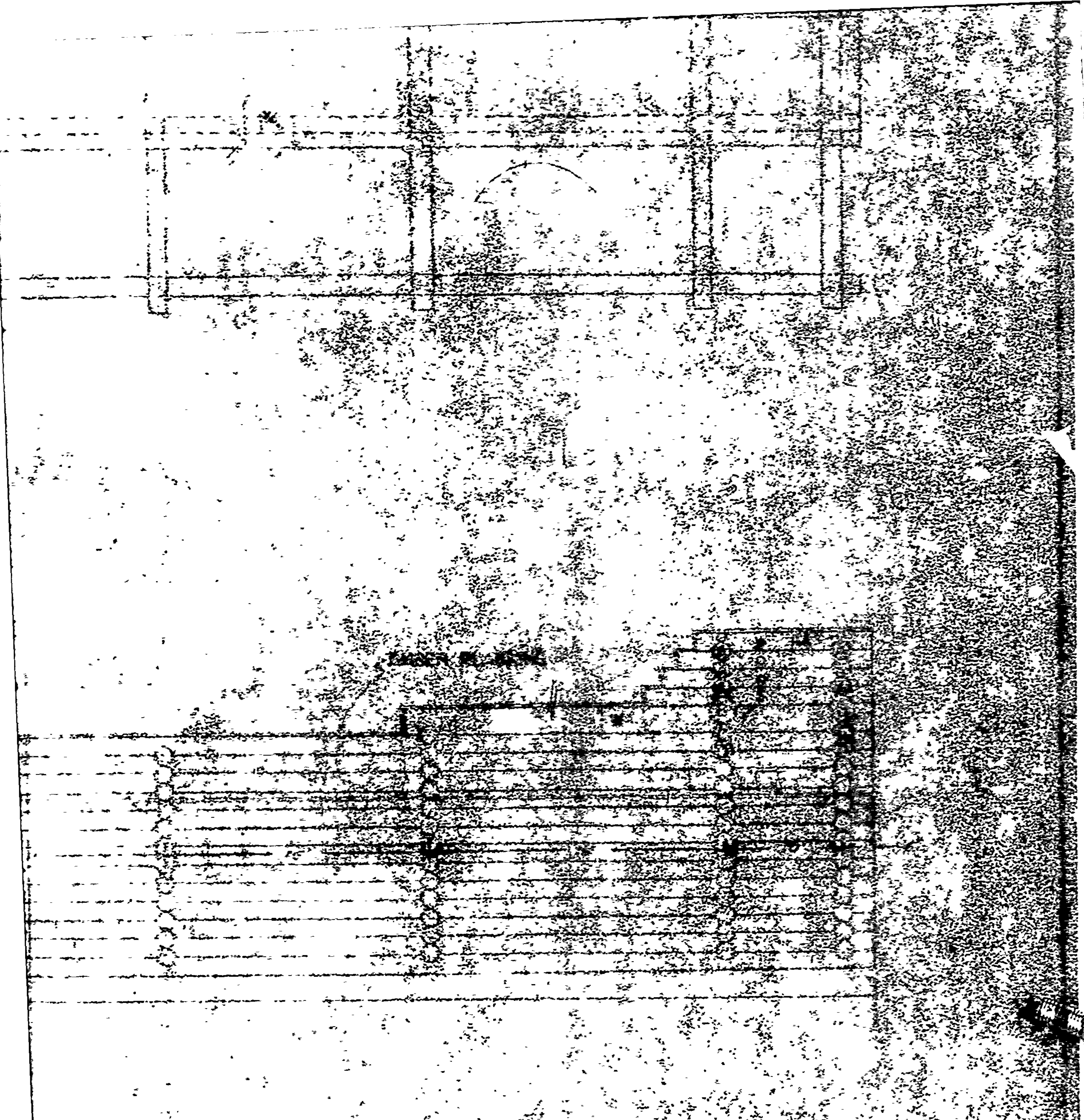


PLAN VIEW


EL 1730.5
ELEV 1724
15'
ELEV 1713

ELEVATION FACING UPSTREAM

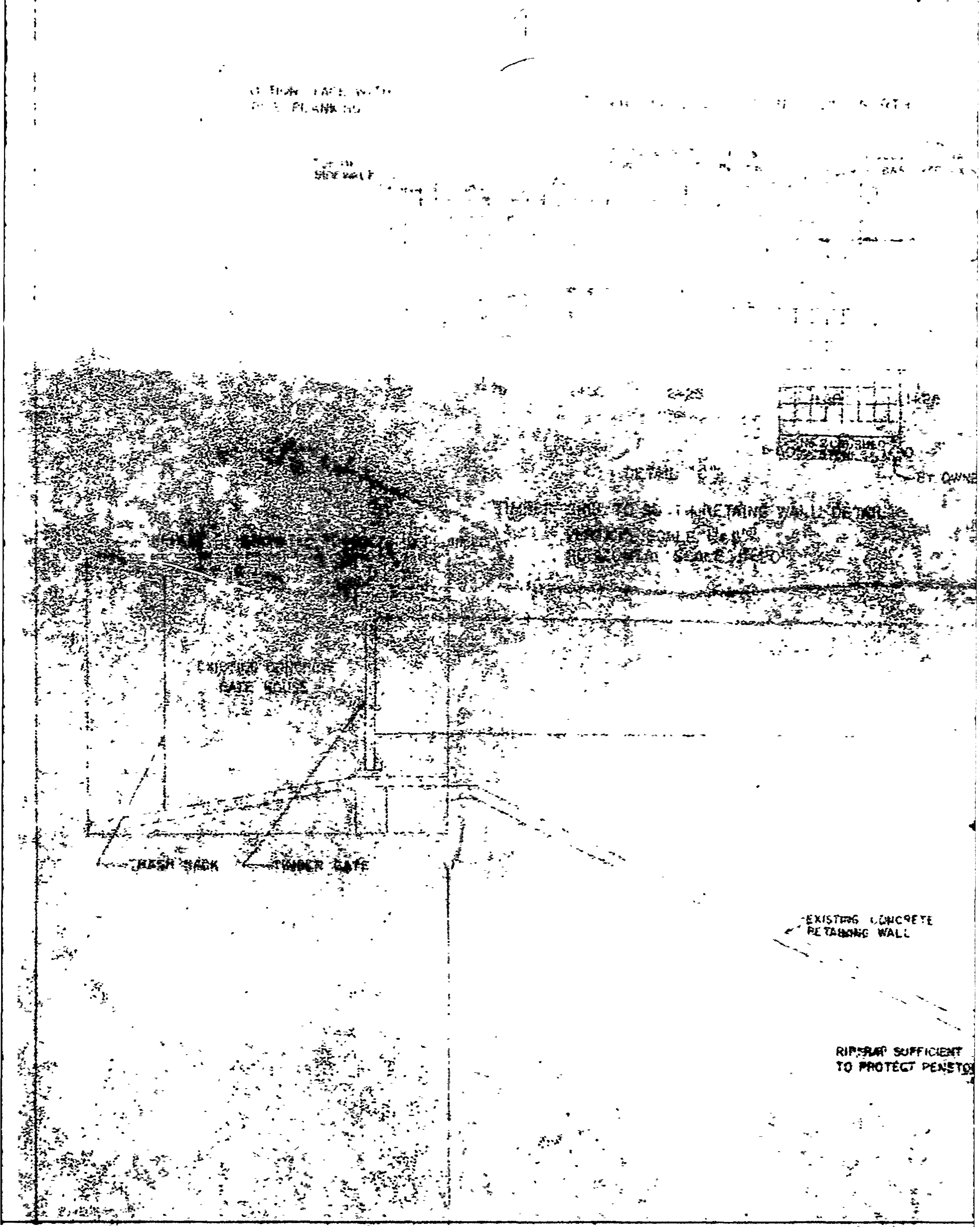
5



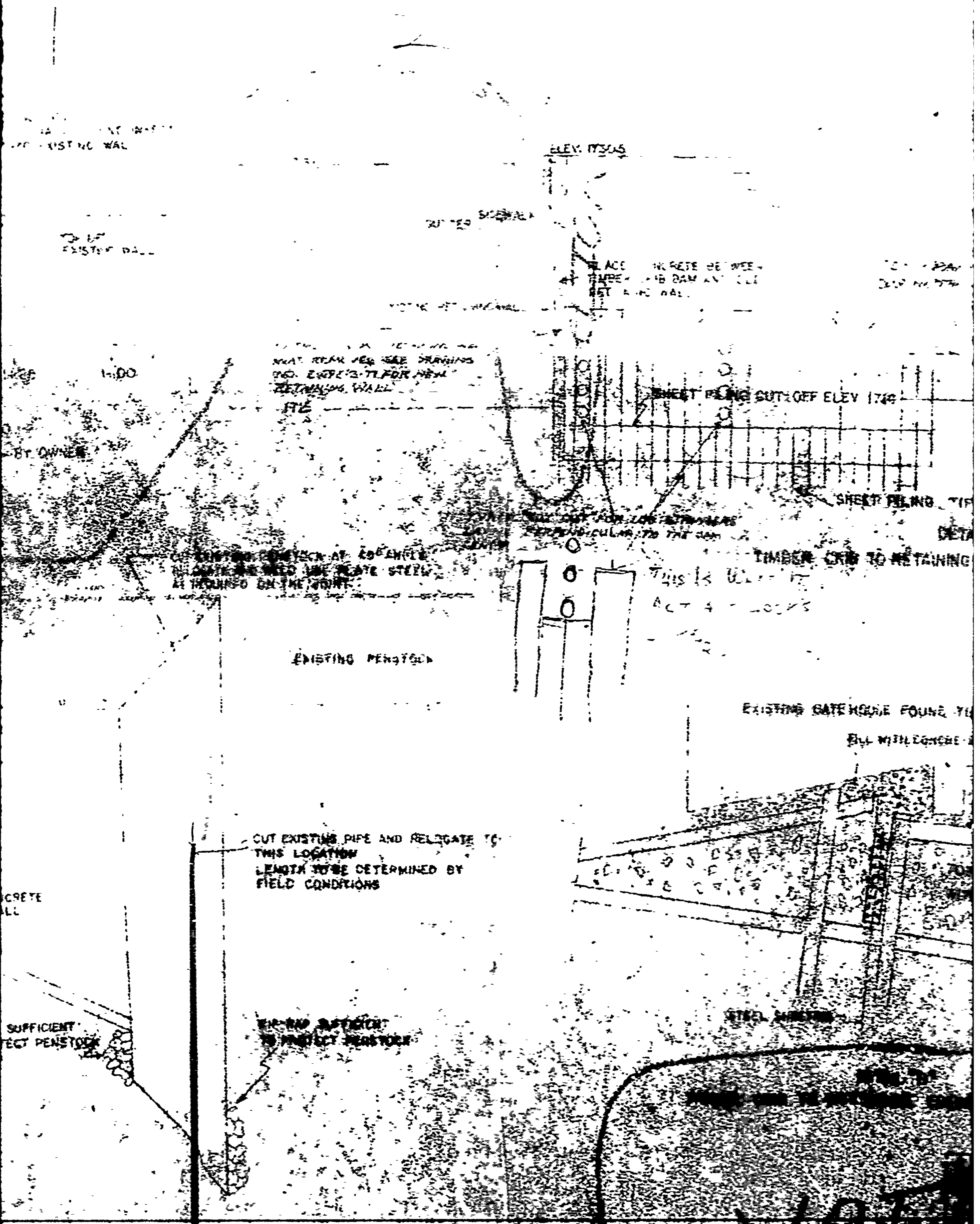
AS BUILT 11-[illegible]

TIMBER GIRDER
DETAIL SHEET

6

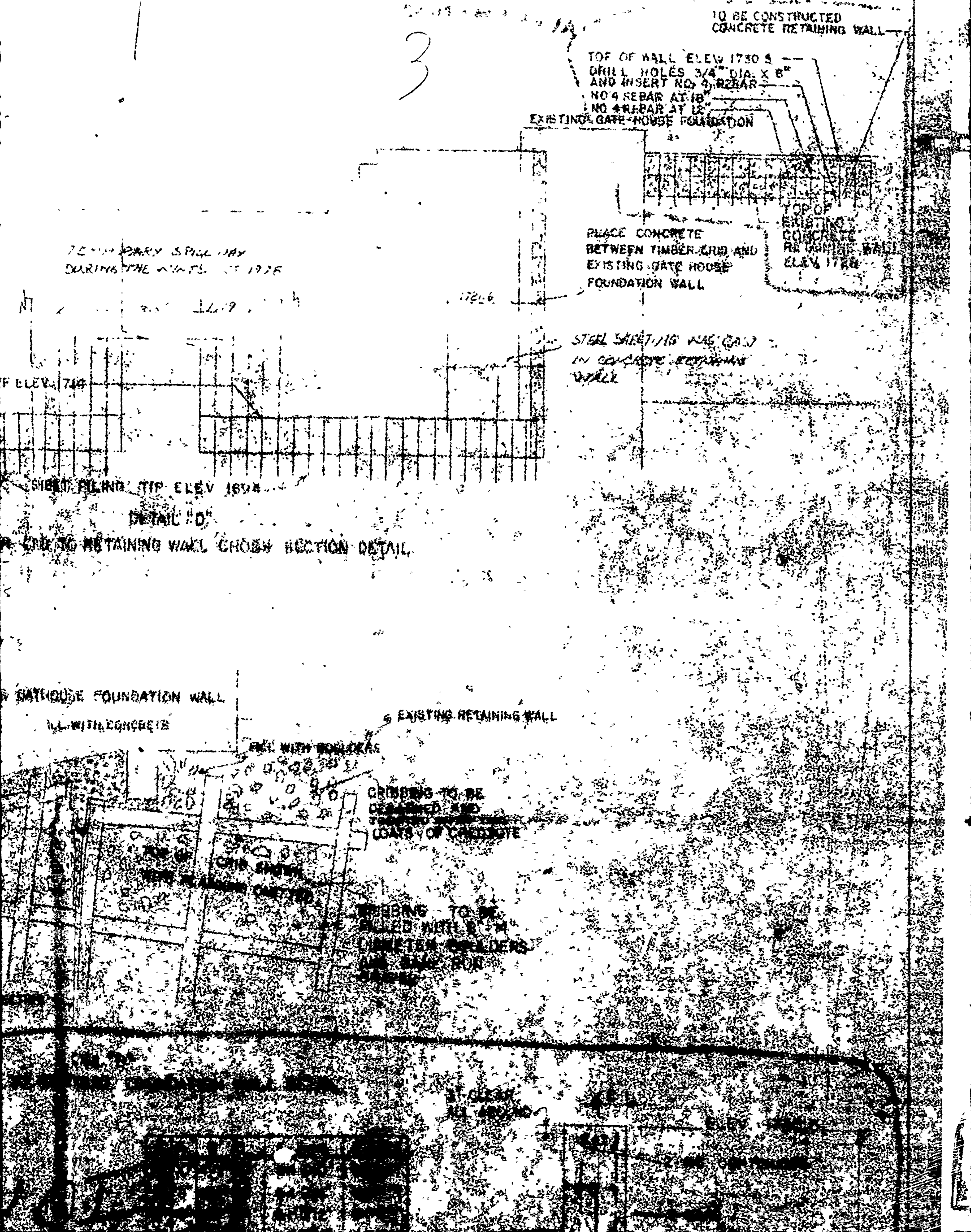


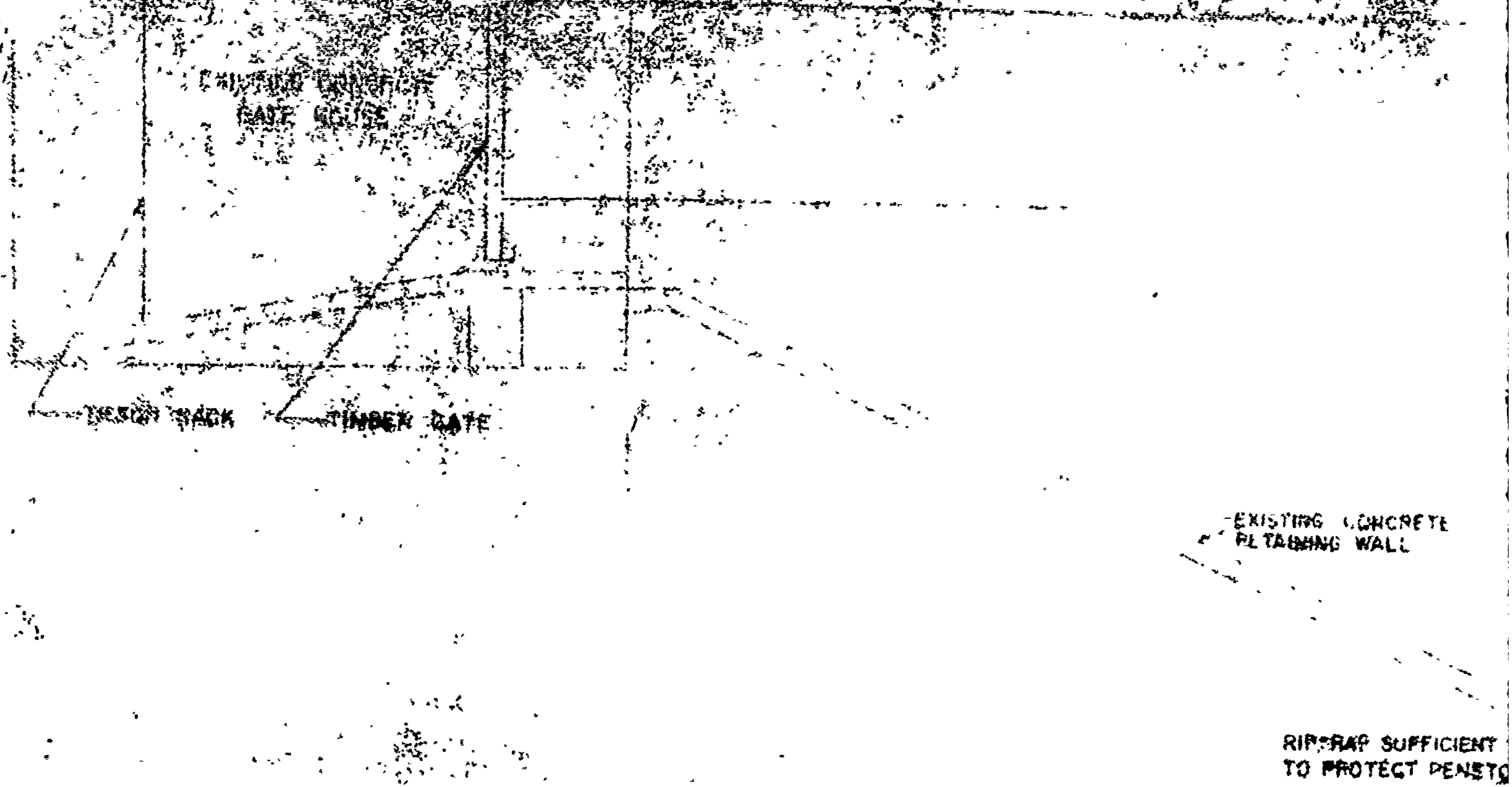
SIDEWALK
RETAINING WALL DETAIL
BY OWNE
EXISTING CONCRETE
GATE HOUSE
TRASH RACK
TIMBER GATE
EXISTING CONCRETE
RETAINING WALL
RIPRAP SUFFICIENT
TO PROTECT PENSTO


EXISTING WALL
TOP OF EXISTING WALL
ELEV. 1750.5
GUTTER
SIDEWALK
PLACE CONCRETE BETWEEN TIMBER CRIB DAM AND RET. WALL
SEE DRAWING NO. EXP-3-71 FOR NEW RETAINING WALL
BY OWNER
SHEET PILING CUT-OFF ELEV 1740
SHEET PILING TIP
PERPENDICULAR TO THE DAM
TIMBER CRIB TO RETAINING
CUT EXISTING PENSTOCK AT 45° ANGLE
PLATE STEEL AS REQUIRED ON THE JOINT
This is as it looks
EXISTING PENSTOCK
EXISTING GATE HOUSE FOUND.
FILL WITH CONCRETE
CUT EXISTING PIPE AND RELOCATE TO THIS LOCATION
LENGTH TO BE DETERMINED BY FIELD CONDITIONS
CRETE
LL
SUFFICIENT
ECT PENSTOCK
RIP-RAP SUFFICIENT TO PROTECT PENSTOCK
STEEL SHEETING

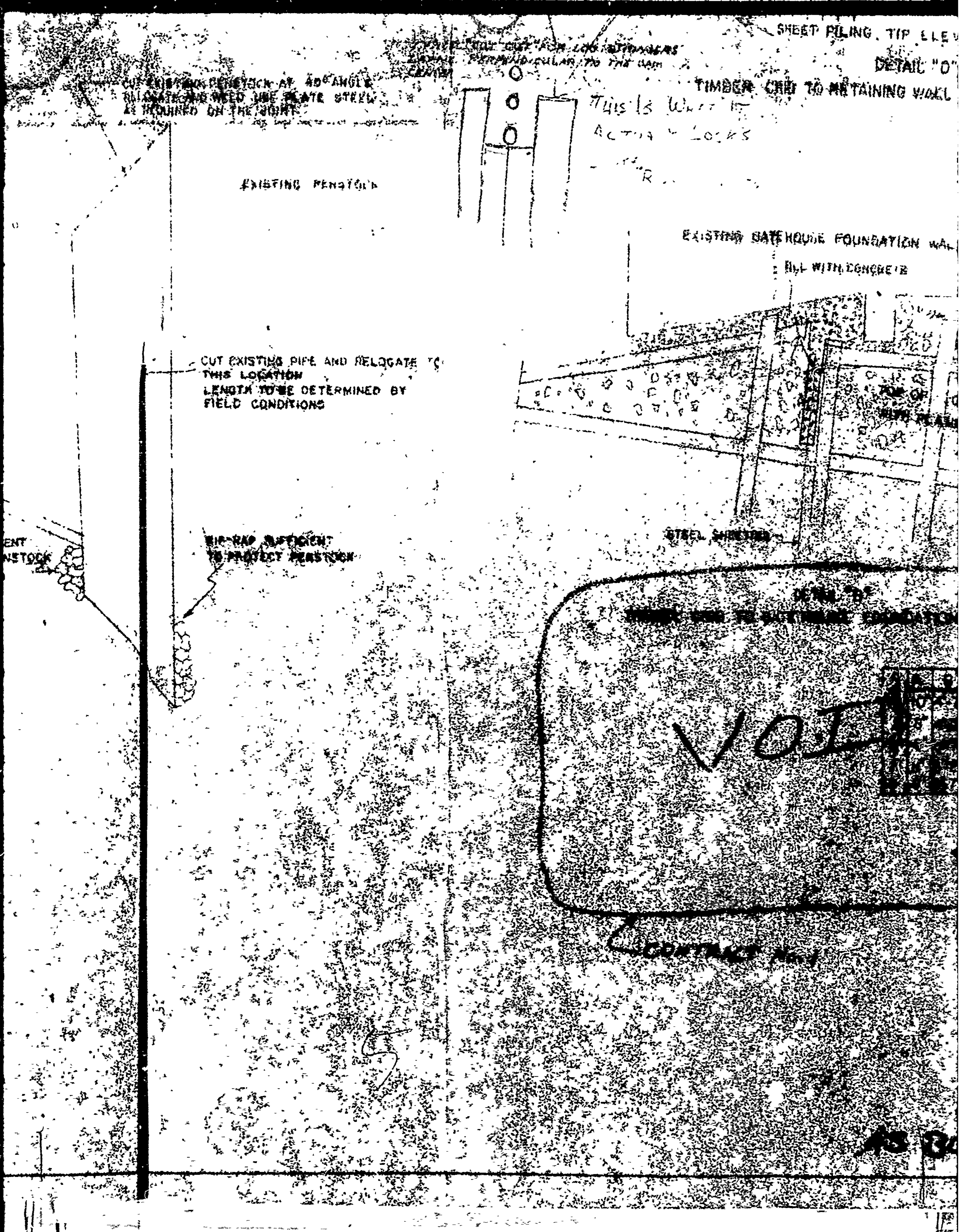
1

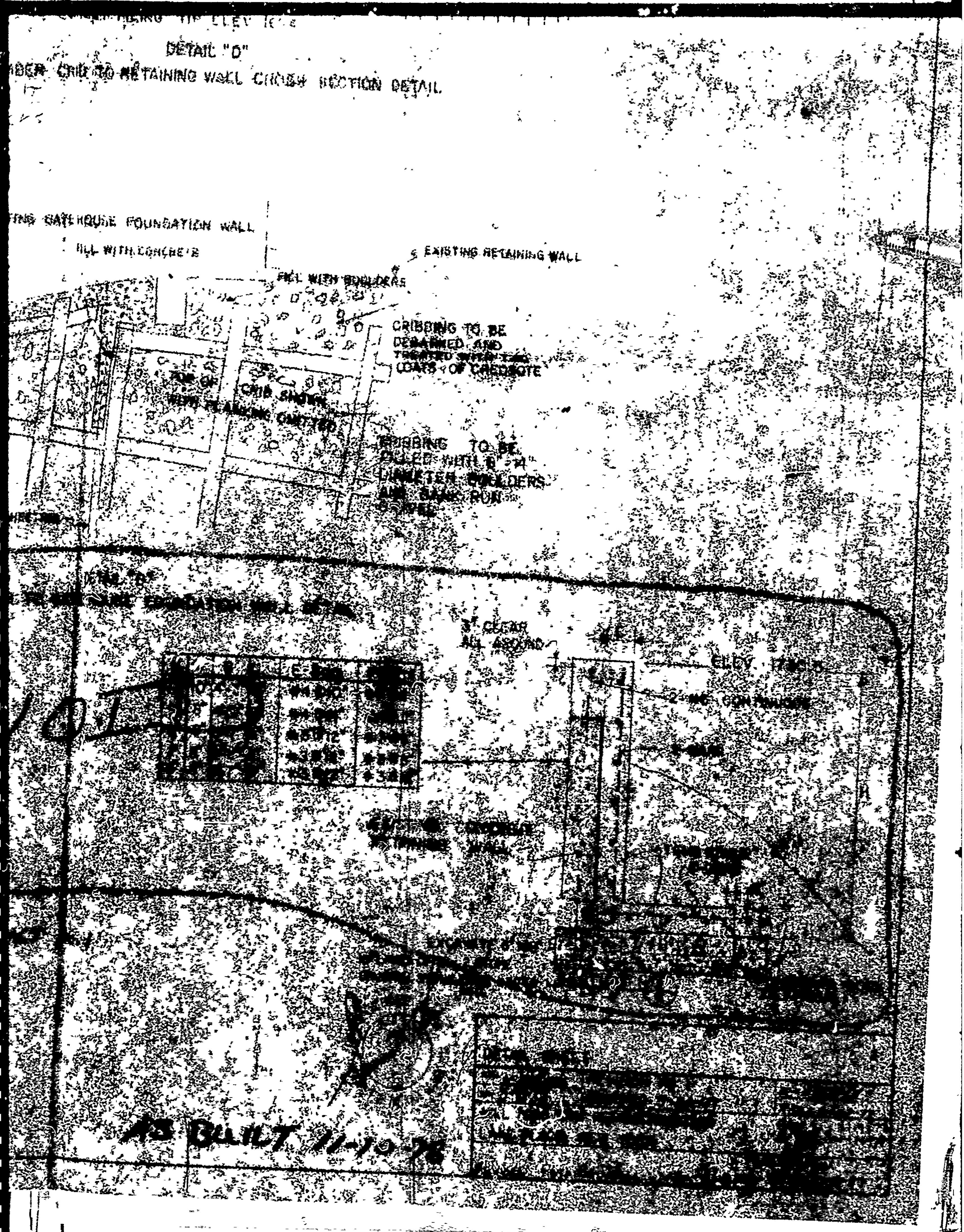
3

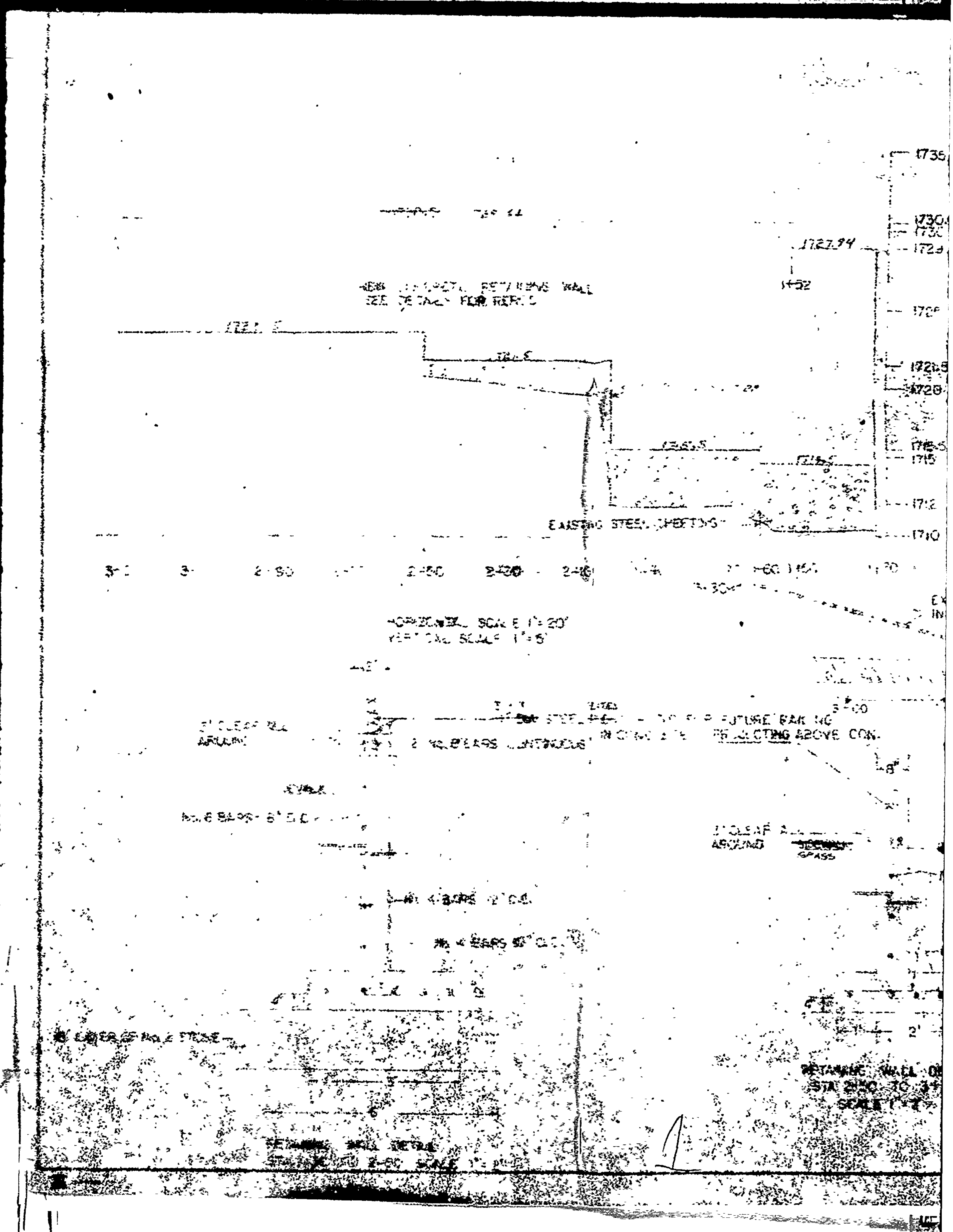

TO BE CONSTRUCTED CONCRETE RETAINING WALL
TOP OF WALL ELEV 1730.5
DRILL HOLES 3/4" DIA. X 6" AND INSERT NO. 4 REBAR
NO 4 REBAR AT 18"
NO 4 REBAR AT 12"
EXISTING GATE HOUSE FOUNDATION
TOP OF EXISTING CONCRETE RETAINING WALL ELEV 1728
PLACE CONCRETE BETWEEN TIMBER CRIB AND EXISTING GATE HOUSE FOUNDATION WALL
TEMPORARY SPILLWAY DURING THE WINTER OF 1976
1726
STEEL SHEETING WAS CAST IN CONCRETE RETAINING WALL
ELEV 1710
SHEET PILING TIP ELEV 1694
DETAIL "D"
CRIB TO RETAINING WALL CROSS SECTION DETAIL
GATHOUSE FOUNDATION WALL
FILL WITH CONCRETE
EXISTING RETAINING WALL
FILL WITH BOULDERS
CRIBBING TO BE DEBARKED AND TREATED WITH TWO COATS OF CREOSOTE
CRIBBING TO BE FILLED WITH 8"-14" DIAMETER BOULDERS AND BANK RUN GRAVEL
DETAIL "E"
3" CLEAR ALL AROUND
ELEV

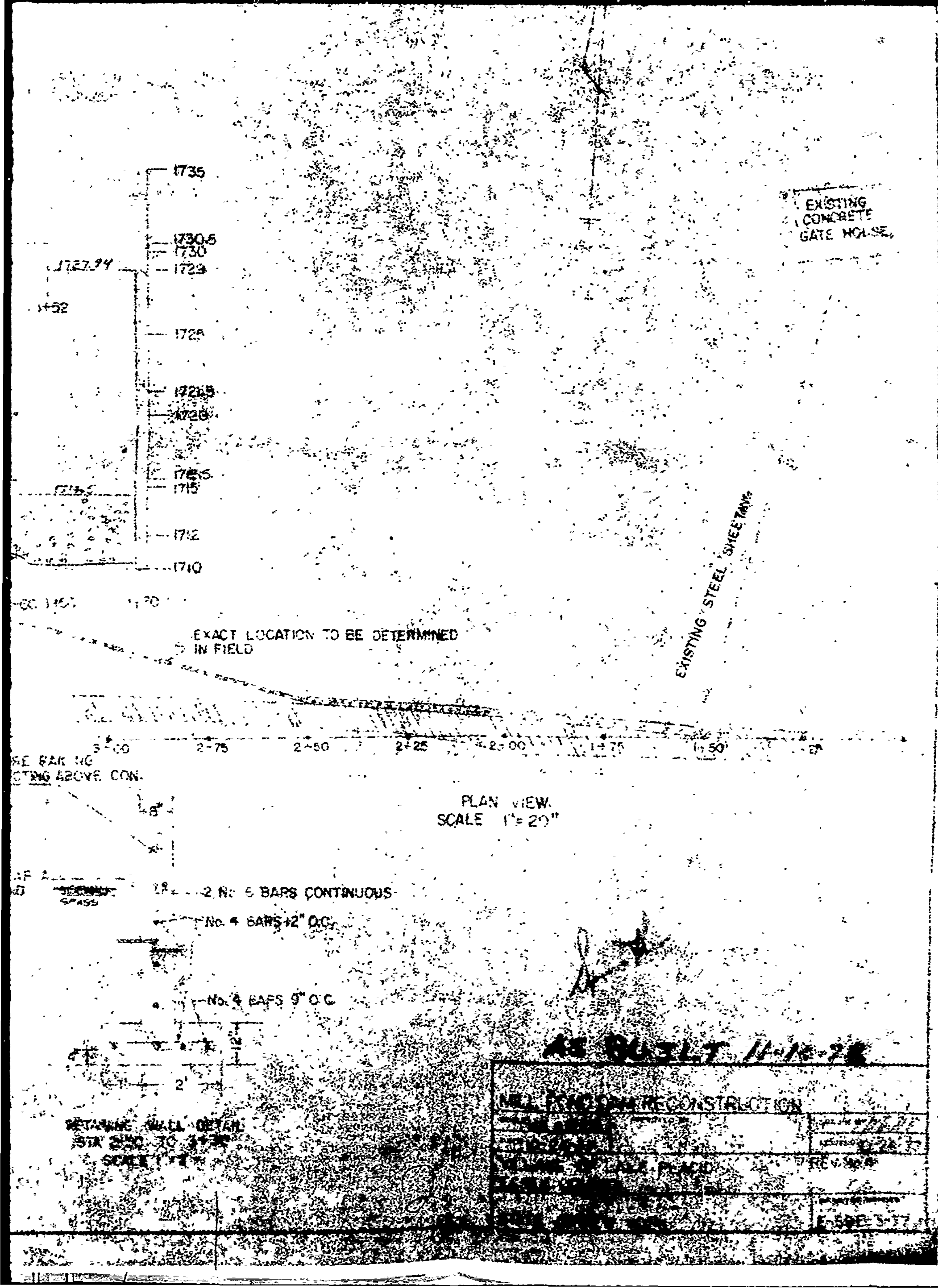

EXISTING CONCRETE GATE HOUSE
TRASH RACK
TIMBER GATE
EXISTING CONCRETE RETAINING WALL
RIPRAP SUFFICIENT
TO PROTECT PENSTO

DETAIL "E"
EMERGENCY PENSTOCK SPILLWAY


CUT EXISTING PENSTOCK AT 45° ANGLE
RELOCATE AND WELD USE PLATE STEEL
AS REQUIRED ON THE JOINT
EXISTING PENSTOCK
CUT FOR LOG
PERPENDICULAR TO THE DAM
SHEET PILING, TIP ELEV
DETAIL "D"
TIMBER CRIB TO RETAINING WALL
This Is What It
Actually Looks
EXISTING GATEHOUSE FOUNDATION WAL
FILL WITH CONCRETE
CUT EXISTING PIPE AND RELOCATE TO
THIS LOCATION
LENGTH TO BE DETERMINED BY
FIELD CONDITIONS
ENT
NSTOCK
RIP-RAP SUFFICIENT
TO PROTECT PENSTOCK
STEEL SHEETING
DETAIL "B"
FOUNDATION
VOI
CONTRACT No. 1
AS


DETAIL "D"
TIMBER CRIB TO RETAINING WALL CROSS SECTION DETAIL
EXISTING GATEHOUSE FOUNDATION WALL
FILL WITH CONCRETE
EXISTING RETAINING WALL
FILL WITH BOULDERS
CRIBBING TO BE DEBARKED AND TREATED WITH TWO COATS OF CREOSOTE
TOP OF CRIB SHOWN WITH PLANKING OMITTED
CRIBBING TO BE FILLED WITH 6"-14" DIAMETER BOULDERS AND BANK RUN GRAVEL
3" CLEAR ALL AROUND
ELEV.
2 #6 CONTINUOUS
CONCRETE RETAINING WALL
AS BUILT 11-19-78


1735
1730
1725
1722.94
1+52
1720
1726.5
1715.5
1715
1712
1710
NEW CONCRETE RETAINING WALL
SEE DETAIL FOR REBARS
EXISTING STEEL SHEETING
3+00
2+80
2+60
2+40
2+20
1+60
1+40
1+20
HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=5'
3" CLEAR ALL AROUND
2 No. 8 BARS CONTINUOUS
STEEL ... FUTURE BAR ... PROJECTING ABOVE CON.
No. 6 BARS 6" O.C.
3" CLEAR ALL AROUND
SPACES
No. 4 BARS 12" O.C.
No. 4 BARS 12" O.C.
8"
2'
LAYER OF No. 2 STONE
RETAINING WALL DETAIL
STA ... TO 2+80 SCALE 1"=...
RETAINING WALL ...
STA 2+00 TO 3+...
SCALE 1"=...

1735
1730.5
1730
1729
1727.94
1+52
1725
1721.5
1720
1716.5
1715
1712
1710
1+70
EXACT LOCATION TO BE DETERMINED IN FIELD
EXISTING CONCRETE GATE HOUSE
EXISTING STEEL SHEETING
3+00
2+75
2+50
2+25
2+00
1+75
1+50
PLAN VIEW
SCALE 1"= 20'
ABOVE CON.
8"
2 No. 6 BARS CONTINUOUS
No. 4 BARS 12" O.C.
No. 4 BARS 9" O.C.
12"
2'
RETAINING WALL DETAIL
STA 2+00 TO 3+30
AS BUILT 11-16-78
MILL POND DAM RECONSTRUCTION
VILLAGE OF LAKE PLACID
E-598-3-77